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INVESTIGATIONS OF GRAVITY AND ISOSTASY

BY

WILLIAM BOWIE
Chief of Division of Geodesy
U. S. Coast and Geodetic Survey

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INVESTIGATIONS OF GRAVITY AND ISOSTASY.

By William Bowie, *Chief of the Division of Geodesy.*

INTRODUCTION.

For a number of years the United States Coast and Geodetic Survey has been carrying on geodetic investigations of isostasy, with special reference to the effect of the isostatic compensation upon the deflection of the vertical and the intensity of gravity.

Four reports on these investigations have appeared, the first one in 1909 and the last in 1912.[a]

The first two dealt with the determination of the figure of the earth from deflections of the vertical in the United States, corrected for topography and isostatic compensation. In the last two there were given the results of the investigation of the effect of topography and isostatic compensation upon the intensity of gravity at stations mostly in the United States.

The present volume gives the results of further study of the relation between gravity and isostasy. In it are embodied the gravity data resulting from the previous work. In the second gravity report 124 stations in the United States were considered, while in the investigation of which this volume is a report there are listed 219 gravity stations in the United States, 42 stations in Canada, 73 stations in India, and 40 others, principally in Europe. The Canadian stations were established by F. A. McDiarmid, of the Geodetic Survey of Canada. He reduced those stations for topography and isostatic compensation after the method described in Special Publication No. 10. The late director of the Geodetic Survey of Canada, Dr. W. F. King, generously furnished to the United States Coast and Geodetic Survey the results of their work for incorporation with the United States stations in some phases of this investigation, previous to their publication in Canada.

This report has as its main features:

1. The observed value of the intensity of gravity at stations in the United States, Canada, India, and Europe and at a few scattering stations.
2. Discussions of the relations between the gravity anomalies and the topography, the large areas of erosion and deposition, the geological formation as indicated by the surface rock at the stations, and the elevation of the station.
3. The regional versus the local distribution of isostatic compensation.
4. The determination of a gravity equation, the earth's flattening, and the depth of compensation upon each of several assumptions.
5. Summaries of the results of the field observations with the pendulums. These furnish a basis upon which to judge the accuracy of the determination of the intensity of gravity at the various stations.
6. The illustrations in the pocket at the back of the volume, which give graphically much data resulting from this investigation.

There are other lines along which investigations might have been made. Some of these may be undertaken at a later date as more data become available. One of these is the detailed study of certain regions where there are gravity and deflection stations and where the evidence

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[a] Figure of the Earth and Isostasy from Measurements in the United States, by J. F. Hayford, 1909; Supplementary Investigation in 1909 of the Figure of the Earth and Isostasy, by J. F. Hayford, 1910; Effect of Topography and Isostatic Compensation upon the Intensity of Gravity, by J. F. Hayford and William Bowie (Special Publication No. 10), 1912; same title, second paper, by William Bowie (Special Publication No. 12), 1912.

points to strong local disturbances or causes which change the size and sign of the gravity anomalies at stations grouped comparatively close together. This phase of the subject is an important one and has been urged upon the Survey by several scientists of note.

It is hoped that many of those who are interested in the subject of isostasy will use the data contained in this and similar publications of the Survey for detailed study and investigation. It is only in this way that the data collected and published can be fully utilized. The time which can be placed on this work by members of the Survey is necessarily limited, because of many other lines of duty calling for prompt attention.

It is believed that it is desirable to publish promptly the observed values of the intensity of gravity and the reductions for topography and isostatic compensation rather than to delay for exhaustive detailed studies.

The author desires to express his appreciation of the important part taken by a number of the members of the Survey in the investigations covered by this report and in the preparation of the report itself. Especial credit is due Computers W. D. Lambert, Sarah Beall, H. G. Avers, C. H. Swick, E. F. Church, and G. E. Selby.

Assistants C. L. Garner and J. D. Powell deserve much credit for the efficient way in which they carried on the field work while establishing the 94 new stations. They did this work with great accuracy and economy. They also assisted in the office reductions.

As far as possible this report follows the general plan of the two previous gravity reports of the Survey. As the writer is the author of the second of those reports and a joint author of the first, some of the statements and definitions contained in the text of this volume may be similar to those in the former reports. Under the circumstances it is not necessary to set them off from the other text.

In Part I of this volume are given the results of the investigations, and in Part II the abstracts or summaries of observations in the field and the descriptions of the stations.

Anyone wishing to make a detailed study of the subject covered by this report should consult the four reports whose titles are given in the footnote on page 5. They may be obtained through the Division of Publications of the Department of Commerce, Washington, D. C.

Part I.—INVESTIGATION OF GRAVITY AND ISOSTASY.

Chapter I.—DEFINITION OF TERMS AND EXPLANATION OF METHODS OF COMPUTATION

ISOSTASY DEFINED.

If the earth were composed of homogeneous material, its figure of equilibrium, under the influence of gravitation[a] and its own rotation, would be an ellipsoid of revolution.

The earth is composed of heterogeneous material which varies considerably in density. If this heterogeneous material were so arranged that its density at any point depended simply upon the depth of that point below the surface, or, more accurately, if all the material lying at each equipotential surface (rotation considered) were of one density, a state of equilibrium would exist, and there would be no tendency toward a rearrangement of masses. The figure of the earth in this case would be a very close approximation to an ellipsoid of revolution.

If the heterogeneous material composing the earth were not arranged in this manner at the outset, the stresses produced by gravity would tend to bring about such an arrangement; but as the material is not a perfect fluid, since it possesses considerable viscosity, at least near the surface, the rearrangement will be imperfect. In the partial rearrangement some stresses will still remain, different portions of the same horizontal stratum may have somewhat different densities, and the actual surface of the earth will be a slight departure from the ellipsoid of revolution in the sense that above each region of deficient density there will be a bulge or bump on the ellipsoid, and above each region of excessive density there will be a hollow, relatively speaking. The bumps on this supposed earth will be the mountains, the plateaus, the continents, and the hollows will be the oceans. The excess of material represented by that portion of the continent which is above sea level will be compensated for by a deficiency of density in the underlying material. The continents will be floated, so to speak, because they are composed of relatively light material; and, similarly, the floor of the ocean will, on this supposed earth, be depressed because it is composed of unusually dense material. This particular condition of approximate equilibrium has been given the name "isostasy."

The adjustment of the material toward this condition, which is produced in nature by the stresses due to gravity, may be called the "isostatic adjustment."

The compensation of the excess of matter at the surface (continents) by the deficiency of density below, and of surface deficiency of matter (oceans) by excess of density below, may be called the "isostatic compensation."

Let the depth below sea level within which the isostatic compensation is complete be called the "depth of compensation." At and below this depth the condition as to stress of any element of mass is isostatic; that is, any element of mass is subject to equal pressures from all directions as if it were a portion of a perfect fluid. Above this depth, on the other hand, each element of mass is subject in general to different pressures in different directions—to stresses which tend to distort it and to move it.

Consider the relations of the masses, densities, and volumes, above the depth of compensation, fixed by the preceding definition. The mass in any prismatic column which has for its base a unit area of the horizontal surface which lies at the depth of compensation, for

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[a] In this publication "gravity" is the term used for the phenomenon of weight or of the acceleration of a body falling to the earth, and, at any place, it is the resultant of the earth's attractive force, "gravitation," and the centrifugal force due to the earth's rotation. This distinction between the terms "gravity" and "gravitation" is not always clearly drawn.

In general it will be found that throughout this publication the attraction (expressed in dynes) is dealt with directly by preference rather than its numerical equivalent, the acceleration (expressed in centimeters and seconds).

its edges vertical lines (lines of gravity) and for its upper limit the actual irregular surface of the earth (or the sea surface, if the area in question is beneath the ocean), is the same as the mass in any other similar prismatic column having any other unit area of the same surface for its base.

ASSUMPTIONS MADE IN REGARD TO THE TOPOGRAPHY AND ISOSTATIC COMPENSATION.

For the purpose of making the computations by the Hayford method the earth's crust is assumed to be in a state of perfect isostasy, with each topographic feature compensated for by a deficiency (or excess) of mass directly under it, and it is assumed that this compensating deficiency (or excess) of mass is uniformly distributed to a depth of 113.7 km. This depth is that resulting from the first investigation by Hayford given in the Figure of the Earth and Isostasy from Measurements in the United States.

The mean density of the solid portion of the earth's surface is assumed to be 2.67 and the density of the ocean water 1.027. There is no assumption regarding the normal densities in the earth's crust below sea level. This fact should be clearly borne in mind, for a failure to realize this has been confusing to some who have considered the question of isostasy. It is simply assumed that the arrangement of the densities in the crust under a coastal plane at zero elevation is normal and that the densities under the continents, islands, and the oceans depart from the normal condition by the amount necessary to distribute the isostatic compensation uniformly with respect to depth of compensation. For our purpose a knowledge of the actual density at any given depth is unnecessary.

The writer does not believe any one of the assumptions stated above is exactly true. The average density (from Harkness's The Solar Parallax and Its Related Constants, p. 92) is certainly in error for the surface materials at many stations. The depth of compensation has a large probable error and may be largely in error for any given place. As it is the average or mean depth it may be subject to an actual error of considerable size. It is probable that the compensation for a topographic feature is not always distributed with exact uniformity with respect to depth. And it is also probable that the compensation is not located directly under a topographic feature. It may have a greater horizontal extent than the feature. The anomalies or differences between the observed gravity and the computed gravity give an idea of the extent to which the assumptions are not true. These differences are due partly to errors in the observations and computations, but mostly to departures from the conditions postulated. But it may be stated that the results show that the continents as a whole are almost perfectly compensated and that this is the condition with respect to large portions of a continent. One of the important problems of the geodesist is to determine the limits of the areas which may not be at least partly compensated.

CHANGE OF SIGN DUE TO DISTANCE.

The reader should consult pages 65 to 70 of Special Publication No. 10, which deals with the change of sign of the effect of topography and compensation due to distance.

In nearly all cases the combined effect of the topography and compensation changes sign from plus to minus before zone L is reached. This zone has an inner limit which is only 19 km. from the station. This is an important matter which should be considered by anyone studying the question of isostasy and its effect upon the intensity of gravity. One might assume without due consideration that in a mountainous region a station should have large positive corrections for each of the near zones, say within zone N, outer limit 99 km., while they may have large negative values. Pikes Peak, for example, has corrections of −0.0290 and −0.0334 dynes, respectively, for zones M and N.

The explanation of the change in sign is given in detail in Special Publication No. 10. Briefly, it is that near the station the topography has the predominating effect, as it is much closer than the center of mass of the compensation. As the distance from the station increases the ratio between the sine of the depression angle to the center of the compensation and the sine of the angle of elevation or depression to the center of the topography becomes greater.

At the same time the ratio of the distances to the compensation and to the topography becomes less. Therefore at a certain distance the vertical component of the effect of the compensation becomes greater than that of the topography.

It is evident that at great distances from the station the effect of the compensation will be greater than the topography. It should be noted that the effect of topography in the oceans is negative and its compensation positive. This fact causes the combined effect for the more distant zones, which cover water areas mostly, to be positive. These facts may be observed by referring to the table given on pages 20–48.

REDUCTION TABLES FOR EFFECT OF TOPOGRAPHY AND ISOSTATIC COMPENSATION.

The tables for making the reduction for topography and compensation were computed upon the theory that the earth's crust is in a state of perfect isostasy with a surface density of 2.67 and a density of water in the oceans of 1.027, that the compensation is complete directly under the topography, and that the depth of compensation is 113.7 km. These tables with detailed statements as to the methods employed in computing them, and directions for using them are printed in Special Publication No. 10, entitled, "The effect of topography and isostatic compensation upon the intensity of gravity," United States Coast and Geodetic Survey, 1912. It is not desirable to repeat the tables with descriptions showing how to use them. The tables are made for 33 zones, which cover the entire surface of the earth, it having been found that the resultant attraction of the topography and compensation even at the antipodes must be taken into account.

It has been found possible to save much effort in making the computations by interpolating the values for the effect of the topography and compensation for the outer zones for a station from the values for those zones computed for surrounding stations. The saving will be greater when the new station is very close to the stations used for the interpolation. The subject of interpolation is discussed fully on pages 58 to 65 of Special Publication No. 10.

CORRECTIONS AND ADDITIONS TO TABLES.

Since its publication some errors were discovered in the reduction table for zone C. This table is repeated below with the corrected numbers in boldface type. These errors had no appreciable effect on the results of the investigations reported in Special Publications Nos. 10 and 12.

On pages 11 to 18 there are given additional tables which should be used when computing the effect of topography and compensation for the close topography at mountain stations. (See p. 94.)

For computing the effect of using the tables for a subdivided zone instead of the table for the entire zone, the elevation of the entire zone must be made consistent with the elevation of its parts. If h_1 and h_2 are, respectively, the elevations of the inner and outer subzones and h the average elevation of the entire zone, then,

for zone C, $h=h_2+0.255\ (h_1-h_2)$,
for zone D, $h=h_2+0.310\ (h_1-h_2)$,
for zone E, $h=h_2+0.317\ (h_1-h_2)$,
for zone F, $h=h_2+0.328\ (h_1-h_2)$.

In conformity with the reduction tables in Special Publication No. 10 all tabular values in the following tables are expressed in units of the fourth decimal place in dynes.

Corrected reduction table for Zone C.[a]

[Inner radius, 68 meters; outer radius, 230 meters. Four compartments.]

Mean elevation of compartment	Correction for			Correction for elevation of station—																					
				Above compartment											Below compartment										
	Topography	Compensation	Topography and compensation	50 feet	100 feet	150 feet	200 feet	250 feet	300 feet	350 feet	400 feet	450 feet	500 feet	600 feet	50 feet	100 feet	150 feet	200 feet	250 feet	300 feet	350 feet	400 feet	450 feet	500 feet	600 feet
Fathoms																									
−80	− 9	0	− 9																						
−40	− 4	0	− 4	0	0	0	0																		
Feet																									
25	0	0	0	0	+1	+1	+1	+1	+1	+ 1	+ 1	+ 1	+ 1	+ 1											
50	0	0	0	+1	+1	+1	+2	+2	+2	+ 2	+ 1	+ 1	+ 1	+ 1	−1										
75	+ 1	0	+ 1	+1	+2	+2	+2	+2	+2	+ 2	+ 2	+ 1	+ 1	+ 1	−1										
100	+ 1	0	+ 1	+1	+2	+2	+2	+2	+2	+ 2	+ 2	+ 2	+ 2	+ 1	−1	−2									
150	+ 3	0	+ 3	+1	+2	+3	+3	+3	+3	+ 3	+ 2	+ 2	+ 2	+ 2	−2	−3	−5								
200	+ 4	0	+ 4	+2	+2	+3	+3	+3	+2	+ 2	+ 2	+ 2	+ 1	0	−2	−4	−7	− 9							
300	+ 8	0	+ 8	+2	+2	+3	+2	+2	+2	+ 1	+ 1	0	0	− 1	−2	−5	−8	−11	−14	−16					
400	+12	0	+12	+1	+2	+2	+2	+1	+1	0	0	− 1	− 2	− 4	−2	−4	−8	−12	−15	−18	−21	−23			
500	+15	0	+15	+1	+2	+2	+1	0	0	− 1	− 2	− 3	− 4	− 5	−2	−4	−8	−11	−15	−18	−22	−25	−28	−30	
600	+18	0	+18	+1	+1	+1	0	−1	−2	− 3	− 4	− 4	− 5	− 6	−2	−4	−7	−10	−14	−18	−21	−25	−28	−32	−35
800	+22	0	+22	+1	+1	0	−1	−2	−3	− 4	− 5	− 6	− 8	− 9	−2	−4	−6	− 9	−12	−16	−19	−22	−26	−29	−36
1 000	+26	0	+26	0	0	−1	−2	−3	−4	− 5	− 7	− 8	− 9	−11	−1	−3	−5	− 8	−11	−14	−17	−20	−23	−26	−32
1 200	+28	0	+28	0	0	−1	−2	−4	−5	− 6	− 8	− 9	−10	−13	−1	−2	−5	− 7	−10	−12	−15	−18	−21	−22	−29
1 400	+31	0	+31	0	0	−1	−3	−4	−6	− 7	− 9	−10	−11	−13	−1	−2	−4	− 6	− 9	−11	−14	−16	−19	−21	−26
1 600	+32	0	+32	0	−1	−2	−3	−4	−6	− 8	− 9	−10	−12	−14	−1	−2	−4	− 6	− 8	−11	−13	−15	−18	−20	−24
1 800	+34	0	+34	0	−1	−2	−3	−5	−6	− 8	−10	−11	−13	−14	−1	−2	−4	− 6	− 8	−10	−12	−14	−17	−19	−23
2 000	+35	0	+35	0	−1	−2	−3	−5	−7	− 8	−10	−11	−13	−15	−1	−2	−4	− 5	− 7	−10	−12	−14	−16	−18	−22
2 500	+37	0	+37	0	−1	−2	−4	−5	−7	− 8	−10	−12	−13	−16	0	−2	−4	− 5	− 7	− 9	−11	−13	−15	−17	−20
3 000	+38	0	+38	0	−1	−2	−4	−6	−7	− 9	−10	−12	−14	−17	0	−2	−3	− 5	− 7	− 9	−11	−13	−15	−16	−20
3 500	+39	0	+39	0	−1	−2	−4	−6	−8	− 9	−10	−12	−14	−17	0	−2	−3	− 5	− 7	− 9	−11	−13	−14	−16	−19
4 000	+40	0	+40	0	−1	−2	−4	−6	−8	− 9	−11	−13	−14	−17	0	−1	−3	− 5	− 7	− 9	−10	−12	−14	−16	−19
5 000	+41	−1	+40	0	−1	−2	−4	−6	−8	−10	−11	−13	−14	−17	0	−1	−3	− 5	− 6	− 8	−10	−12	−14	−15	−18
6 000	+42	−1	+41	0	−1	−3	−4	−6	−8	−10	−11	−13	−14	−17	0	−1	−3	− 4	− 6	− 8	−10	−12	−14	−15	−18
8 000	+42	−1	+41	0	−1	−3	−4	−6	−8	−10	−11	−13	−15	−18	0	−1	−3	− 4	− 6	− 8	−10	−12	−13	−15	−18
10 000	+43	−1	+42	0	−1	−3	−4	−6	−8	−10	−11	−13	−15	−18	0	−1	−3	− 4	− 6	− 8	−10	−12	−13	−15	−18
12 000	+44	−1	+43	0	−1	−3	−4	−6	−8	−10	−11	−13	−15	−18	0	−1	−3	− 4	− 6	− 8	−10	−12	−13	−15	−18
14 000	+44	−2	+42	0	−1	−3	−4	−6	−8	−10	−11	−13	−15	−18	0	−1	−3	− 4	− 6	− 8	−10	−12	−13	−15	−18
16 000	+44	−2	+42	0	−1	−3	−4	−6	−8	−10	−11	−13	−15	−18	0	−1	−3	− 4	− 6	− 8	−10	−12	−13	−15	−18
18 000	+44	−2	+42	0	−1	−3	−4	−6	−8	−10	−11	−13	−15	−18	0	−1	−3	− 4	− 6	− 8	−10	−12	−13	−15	−18

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[a] This table should be used instead of the table for zone C as given on p. 31 of Special Publication No. 10.

REDUCTION TABLES FOR DIVIDED ZONES.

Zone C_1.

[Inner radius, 68 meters; outer radius, 130 meters. Four compartments.]

Mean elevation of compartment, in feet	Correction for—			Correction for elevation of station—																				
	Topography.	Compensation	Topography and compensation	Above compartment											Below compartment									
				50 feet	100 feet	150 feet	200 feet	250 feet	300 feet	350 feet	400 feet	450 feet	500 feet	600 feet	50 feet	100 feet	150 feet	200 feet	250 feet	300 feet	350 feet	400 feet	450 feet	500 feet	600 feet
25	+ 0.1	0	0	0	0	0	0		0	0	0	0	0	0	0										
50	+ 0.2	0	0	0	+1	+1	+1	+1	+1	+1	+1	0	0	0	0										
75	+ 0.5	0	0	0	+1	+1	+1	+1	+1	+1	+1	0	0	0	–1										
100	+ 0.8	0	+ 1	+1	+1	+1	+1	+1	+1	+1	+1	0	0	0	–1	–2									
150	+ 1.7	0	+ 2	+1	+1	+1	+1	+1	+1	+1	0	0	0	0	–1	–2	–3								
200	+ 2.7	0	+ 3	+1	+1	+1	+1	+1	0	0	0	0	–1	–1	–1	–2	–4	–5							
300	+ 4.8	0	+ 5	+1	+1	+1	0	0	0	–1	–1	–2	–2	–2	–1	–2	–5	–7	–8	–10					
400	+ 6.5	0	+ 6	0	+1	0	0	–1	–1	–2	–2	–3	–3	–4	–1	–2	–5	–7	–8	–11	–12	–13			
500	+ 8.0	0	+ 8	0	+1	0	–1	–1	–2	–2	–3	–4	–4	–5	–1	–2	–4	–6	–8	–10	–12	–14	–15	–16	
600	+ 9.2	0	+ 9	0	0	0	–1	–2	–3	–3	–4	–4	–5	–5	–1	–2	–4	–5	–7	– 9	–11	–13	–14	–16	–18
800	+10.9	0	+11	0	0	–1	–2	–2	–3	–4	–5	–5	–6	–7	–1	–2	–3	–4	–6	– 8	–10	–11	–12	–14	–17
1 000	+12.0	0	+12	0	0	–1	–2	–3	–3	–4	–5	–6	–6	–7	–1	–1	–3	–4	–5	– 7	– 8	– 9	–10	–12	–15
1 200	+12.8	0	+13	0	0	–1	–2	–3	–4	–5	–6	–6	–7	–8	0	–1	–2	–4	–5	– 6	– 7	– 8	–10	–10	–13
1 400	+13.4	0	+13	0	–1	–1	–2	–3	–4	–5	–6	–6	–7	–8		–1	–2	–3	–4	– 6	– 7	– 8	– 9	–11	–12
1 600	+13.9	0	+14	0	–1	–1	–2	–3	–4	–5	–6	–6	–7	–8	0	–1	–2	–3	–4	– 6	– 7	– 8	– 9	–10	–11
1 800	+14.3	0	+14	0	–1	–1	–2	–3	–4	–5	–6	–6	–7	–8	0	–1	–2	–3	–4	– 6	– 6	– 7	– 8	– 9	–11
2 000	+14.6	0	+14	0	–1	–2	–2	–3	–4	–5	–6	–7	–7	–8	0	–1	–2	–3	–4	– 5	– 6	– 7	– 8	– 9	–10
2 500	+15.1	0	+15	0	–1	–2	–2	–4	–4	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 8	– 9	–10
3 000	+15.5	0	+15	0	–1	–2	–3	–4	–5	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 8	– 8	–10
3 500	+15.8	0	+16	0	–1	–2	–3	–4	–5	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 8	– 8	–10
4 000	+16.0	0	+16	0	–1	–2	–3	–4	–5	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 7	– 8	– 9
5 000	+16.2	0	+16	0	–1	–2	–3	–4	–5	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 7	– 8	– 9
6 000	+16.4	0	+16	0	–1	–2	–3	–4	–5	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 7	– 8	– 9
8 000	+16.6	0	+16	0	–1	–2	–3	–4	–5	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 7	– 8	– 9
10 000	+16.8	0	+16	0	–1	–2	–3	–4	–5	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 7	– 8	– 9
12 000	+16.9	–1	+16	0	–1	–2	–3	–4	–5	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 7	– 8	– 9
14 000	+17.0	–1	+16	0	–1	–2	–3	–4	–5	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 7	– 8	– 9
16 000	+17.0	–1	+16	0	–1	–2	–3	–4	–5	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 7	– 8	– 9
18 000	+17.0	–1	+16	0	–1	–2	–3	–4	–5	–5	–6	–7	–8	–9	0	–1	–2	–3	–4	– 5	– 6	– 7	– 7	– 8	– 9

Zone C_2.

[Inner radius, 150 meters; outer radius, 230 meters. Four compartments.]

Mean elevation of compartment, in feet	Correction for—			Correction for elevation of station—																					
	Topography	Compensation	Topography and compensation	Above compartment											Below compartment										
				50 feet	100 feet	150 feet	200 feet	250 feet	300 feet	350 feet	400 feet	450 feet	500 feet	600 feet	50 feet	100 feet	150 feet	200 feet	250 feet	300 feet	350 feet	400 feet	450 feet	500 feet	600 feet
25	0	0	0	0	0	0	0	0	0	0	0	0	0	+1	0										
50	+ 0.1	0	0	0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	0										
75	+ 0.2	0	0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0										
100	+ 0.4	0	0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	−1									
150	+ 0.9	0	+ 1	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	−1	−1	−2								
200	+ 1.6	0	+ 2	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+1	−1	−1	−2	−3							
300	+ 3.2	0	+ 3	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+1	−1	−2	−3	−4	−6	−6					
400	+ 5.0	0	+ 5	+1	+1	+1	+1	+2	+2	+2	+2	+1	+1	0	−1	−2	−4	−5	−6	−8	−9	−10			
500	+ 6.8	0	+ 7	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	0	−1	−2	−4	−5	−7	−8	−10	−11	−13	−14	
600	+ 8.5	0	+ 8	+1	+1	+1	+1	+1	+1	0	0	0	0	−1	−1	−2	−3	−5	−7	−9	−10	−12	−14	−15	−17
800	+11.5	0	+12	0	+1	+1	+1	0	0	−1	−1	−1	−2	−3	−1	−2	−3	−5	−6	−8	−10	−11	−13	−15	−18
1 000	+13.8	0	+14	0	+1	0	0	0	−1	−1	−2	−2	−3	−4	−1	−2	−3	−4	−5	−7	−9	−10	−12	−14	−17
1 200	+15.7	0	+16	0	0	0	0	−1	−1	−2	−2	−3	−4	−5	−1	−1	−2	−4	−5	−6	−8	−9	−11	−12	−16
1 400	+17.2	0	+17	0	0	0	0	−1	−2	−2	−3	−4	−4	−6	−1	−1	−2	−3	−4	−6	−7	−8	−10	−11	−14
1 600	+18.3	0	+18	0	0	0	−1	−1	−2	−2	−3	−4	−5	−6	0	−1	−2	−3	−4	−5	−6	−8	−9	−10	−13
1 800	+19.3	0	+19	0	0	0	−1	−1	−2	−3	−3	−4	−5	−6	0	−1	−2	−3	−4	−5	−6	−7	−8	−10	−12
2 000	+20.1	0	+20	0	0	−1	−1	−2	−2	−3	−4	−5	−5	−7	0	−1	−2	−2	−3	−4	−6	−7	−8	−9	−11
2 500	+21.6	0	+22	0	0	−1	−1	−2	−3	−3	−4	−5	−6	−7	0	−1	−1	−2	−3	−4	−5	−6	−7	−8	−10
3 000	+22.6	0	+23	0	0	−1	−1	−2	−3	−4	−4	−5	−6	−8	0	−1	−1	−2	−3	−4	−5	−6	−7	−8	−10
3 500	+23.3	0	+23	0	0	−1	−2	−2	−3	−4	−5	−5	−6	−8	0	0	−1	−2	−3	−4	−5	−6	−7	−8	−9
4 000	+23.9	0	+24	0	0	−1	−2	−2	−3	−4	−5	−6	−6	−8	0	0	−1	−2	−3	−4	−5	−6	−6	−7	−9
5 000	+24.7	0	+25	0	0	−1	−2	−2	−3	−4	−5	−6	−6	−8	0	0	−1	−2	−3	−3	−4	−5	−6	−7	−9
6 000	+25.2	0	+25	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−8	0	0	−1	−2	−3	−3	−4	−5	−6	−7	−9
8 000	+25.9	0	+26	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−8	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−9
10 000	+26.3	0	+26	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−8	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−9
12 000	+26.6	−1	+26	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−8	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−9
14 000	+26.8	−1	+26	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−8	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−9
16 000	+27.0	−1	+26	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−8	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−9
18 000	+27.1	−1	+26	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−8	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−9

Zone D_1.

[Inner radius, 230 meters; outer radius, 380 meters. Six compartments.]

Mean elevation of compartment, in feet	Correction for—			Correction for elevation of station—																					
	Topography	Compensation	Topography and compensation	Above compartment											Below compartment										
				100 feet	200 feet	300 feet	400 feet	500 feet	600 feet	700 feet	800 feet	900 feet	1000 feet	1100 feet	100 feet	200 feet	300 feet	400 feet	500 feet	600 feet	700 feet	800 feet	900 feet	1000 feet	1100 feet
100	+ 0.1	0	+ 0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0										
200	+ 0.6	0	+ 1	+1	+1	+1	+1	+2	+2	+2	+1	+1	+1	+1	-1	-1									
300	+ 1.2	0	+ 1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+1	-1	-2	-2								
400	+ 2.1	0	+ 2	+1	+1	+2	+2	+2	+2	+2	+2	+2	+1	+1	-1	-2	-3	-4							
500	+ 3.1	0	+ 3	+1	+2	+2	+2	+2	+2	+2	+2	+1	+1	+1	-1	-2	-4	-5	-6						
600	+ 4.1	0	+ 4	+1	+2	+2	+2	+2	+2	+2	+1	+1	+1	0	-1	-3	-4	-6	-7	- 8					
700	+ 5.2	0	+ 5	+1	+2	+2	+2	+2	+2	+1	+1	+1	0	0	-1	-3	-4	-6	-8	- 9	-10				
800	+ 6.3	0	+ 6	+1	+1	+2	+2	+2	+1	+1	+1	0	0	-1	-1	-3	-4	-6	-8	-10	-11	-13			
900	+ 7.3	0	+ 7	+1	+1	+2	+2	+1	+1	+1	0	0	-1	-1	-1	-3	-4	-6	-8	-10	-12	-13	-15		
1 000	+ 8.3	0	+ 8	+1	+1	+2	+1	+1	+1	0	0	-1	-1	-2	-1	-3	-4	-6	-8	-10	-12	-14	-16	-17	
1 100	+ 9.3	0	+ 9	+1	+1	+1	+1	+1	0	0	-1	-1	-2	-2	-1	-3	-4	-6	-8	-10	-12	-14	-16	-17	-19
1 200	+10.2	0	+10	+1	+1	+1	+1	+1	0	0	-1	-2	-2	-3	-1	-2	-4	-6	-8	-10	-12	-14	-16	-18	-19
1 300	+11.0	0	+11	+1	+1	+1	+1	0	0	-1	-1	-2	-2	-3	-1	-2	-4	-6	-8	-10	-12	-14	-16	-18	-20
1 400	+11.8	0	+12	+1	+1	+1	+1	0	0	-1	-2	-2	-3	-4	-1	-2	-4	-6	-8	-10	-12	-14	-16	-18	-20
1 500	+12.5	0	+12	+1	+1	+1	0	0	-1	-1	-2	-3	-3	-4	-1	-2	-4	-5	-7	- 9	-11	-14	-16	-18	-20
1 600	+13.2	0	+13	0	+1	+1	0	0	-1	-2	-2	-3	-4	-4	-1	-2	-3	-5	-7	- 9	-11	-13	-15	-17	-19
1 700	+13.9	0	+14	0	+1	0	0	-1	-1	-2	-2	-3	-4	-4	-1	-2	-3	-5	-7	- 9	-11	-13	-15	-17	-19
1 800	+14.5	0	+14	0	0	0	0	-1	-1	-2	-3	-3	-4	-4	-1	-2	-3	-5	-6	- 9	-10	-13	-14	-16	-18
1 900	+15.0	0	+15	0	0	0	0	-1	-1	-2	-3	-4	-4	-5	-1	-2	-3	-5	-6	- 8	-10	-12	-14	-16	-18
2 000	+15.5	0	+15	0	0	0	0	-1	-2	-2	-3	-4	-5	-5	-1	-2	-3	-4	-6	- 8	-10	-11	-14	-15	-17
2 200	+16.4	0	+16	0	0	0	-1	-1	-2	-3	-4	-4	-5	-6	-1	-1	-3	-4	-6	- 8	- 9	-11	-13	-15	-16
2 400	+17.3	0	+17	0	0	0	-1	-1	-2	-3	-4	-5	-5	-6	-1	-1	-3	-4	-5	- 7	- 9	-10	-12	-14	-15
2 600	+18.0	0	+18	0	0	0	-1	-2	-2	-3	-4	-5	-6	-6	0	-1	-2	-4	-5	- 7	- 8	-10	-11	-13	-15
2 800	+18.6	0	+18	0	0	0	-1	-2	-3	-3	-4	-5	-6	-7	0	-1	-2	-3	-5	- 6	- 8	- 9	-11	-12	-14
3 000	+19.2	0	+19	0	0	0	-1	-2	-3	-4	-5	-5	-6	-7	0	-1	-2	-3	-5	- 6	- 7	- 9	-10	-12	-13
3 200	+19.7	0	+19	0	0	-1	-1	-2	-3	-4	-5	-6	-6	-7	0	-1	-2	-3	-4	- 6	- 7	- 9	-10	-11	-13
3 400	+20.1	0	+20	0	0	-1	-1	-2	-3	-4	-5	-6	-7	-8	0	-1	-2	-3	-4	- 6	- 7	- 8	-10	-11	-13
3 600	+20.5	0	+20	0	0	-1	-1	-2	-3	-4	-5	-6	-7	-8	0	-1	-2	-3	-4	- 5	- 7	- 8	-10	-11	-12
3 800	+20.9	0	+21	0	0	-1	-2	-2	-3	-4	-5	-6	-7	-8	0	-1	-2	-3	-4	- 5	- 7	- 8	- 9	-11	-12
4 000	+21.2	0	+21	0	0	-1	-2	-2	-3	-4	-5	-6	-7	-8	0	-1	-2	-3	-4	- 5	- 6	- 8	- 9	-10	-12
4 500	+21.9	0	+22	0	0	-1	-2	-2	-3	-4	-5	-6	-7	-8	0	-1	-1	-3	-4	- 5	- 6	- 7	- 9	-10	-11
5 000	+22.5	0	+22	0	0	-1	-2	-3	-4	-5	-5	-6	-7	-8	0	-1	-1	-3	-4	- 5	- 6	- 7	- 8	-10	-11
5 500	+23.0	0	+23	0	0	-1	-2	-3	-4	-5	-6	-7	-8	-8	0	-1	-1	-3	-4	- 5	- 6	- 7	- 8	- 9	-10
6 000	+23.4	0	+23	0	0	-1	-2	-3	-4	-5	-6	-7	-8	-8	0	-1	-1	-2	-3	- 5	- 6	- 7	- 8	- 9	-10
6 500	+23.7	0	+23	0	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 6	- 7	- 8	- 9	-10
7 000	+24.0	-1	+24	0	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 6	- 7	- 8	- 9	-10
7 500	+24.3	-1	+24	0	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 6	- 7	- 8	- 9	-10
8 000	+24.5	-1	+24	0	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 6	- 7	- 8	- 9	-10
8 500	+24.7	-1	+24	0	-1	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 6	- 7	- 8	- 9	-10
9 000	+24.9	-1	+24	0	-1	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 5	- 7	- 8	- 9	- 9
9 500	+25.1	-1	+24	0	-1	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 5	- 7	- 8	- 9	- 9
10 000	+25.2	-1	+24	0	-1	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 5	- 7	- 8	- 8	- 9
11 000	+25.5	-1	+25	0	-1	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 5	- 7	- 8	- 8	- 9
12 000	+25.7	-1	+25	0	-1	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 5	- 6	- 7	- 8	- 9
13 000	+25.8	-1	+25	0	-1	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 5	- 6	- 7	- 8	- 9
14 000	+26.0	-1	+25	0	-1	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 5	- 6	- 7	- 8	- 9
15 000	+26.1	-1	+25	0	-1	-1	-2	-3	-4	-5	-6	-7	-8	-9	0	-1	-1	-2	-3	- 4	- 5	- 6	- 7	- 8	- 9

Zone D_2.

[Inner radius, 380 meters; outer radius, 590 meters. Six compartments.]

Mean elevation of compartment, in feet	Correction for—			Correction for elevation of station—																															
				Above compartment																Below compartment															
	Topography	Compensation	Topography and compensation	100 feet	200 feet	300 feet	400 feet	500 feet	600 feet	700 feet	800 feet	900 feet	1000 feet	1100 feet	1200 feet	1300 feet	1400 feet	1500 feet	1600 feet	100 feet	200 feet	300 feet	400 feet	500 feet	600 feet	700 feet	800 feet	900 feet	1000 feet	1100 feet	1200 feet	1300 feet	1400 feet	1500 feet	1600 feet
100	+ 0.1	0	0	0	0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+ 1	+ 1	0															
200	+ 0.3	0	0	0	+1	+1	+1	+1	+1	+1	+2	+2	+2	+2	+2	+2	+1	+ 1	+ 1	0	−1														
300	+ 0.7	0	+ 1	0	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+ 2	+ 2	0	−1	−1													
400	+ 1.2	0	+ 1	+1	+1	+2	+2	+2	+2	+2	+3	+3	+3	+3	+2	+2	+2	+ 2	+ 2	−1	−1	−2	−2												
500	+ 1.9	0	+ 2	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+3	+3	+2	+2	+ 2	+ 2	−1	−1	−2	−3	−4											
600	+ 2.6	0	+ 3	+1	+1	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+2	+2	+ 2	+ 2	−1	−2	−3	−4	−4	−5										
700	+ 3.4	0	+ 3	+1	+1	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+2	+2	+ 2	+ 2	−1	−2	−3	−4	−5	−6	− 7									
800	+ 4.3	0	+ 4	+1	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+3	+2	+2	+ 2	+ 2	−1	−2	−3	−4	−5	−7	− 8	− 9								
900	+ 5.2	0	+ 5	+1	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+2	+2	+2	+ 2	+ 1	−1	−2	−3	−5	−6	−7	− 8	− 9	−10							
1 000	+ 6.2	0	+ 6	+1	+2	+2	+3	+3	+3	+3	+3	+3	+3	+2	+2	+2	+2	+ 1	+ 1	−1	−2	−3	−5	−6	−8	− 9	−10	−11	−12						
1 100	+ 7.1	0	+ 7	+1	+2	+2	+2	+3	+3	+3	+3	+3	+2	+2	+2	+2	+1	+ 1	+ 1	−1	−2	−4	−5	−6	−8	− 9	−11	−12	−13	−14					
1 200	+ 8.1	0	+ 8	+1	+2	+2	+2	+3	+3	+3	+3	+2	+2	+2	+2	+1	+1	+ 1	0	−1	−2	−4	−5	−7	−8	−10	−11	−13	−14	−15	−16				
1 300	+ 9.0	0	+ 9	+1	+2	+2	+2	+2	+3	+2	+2	+2	+2	+2	+1	+1	0	0	0	−1	−2	−4	−5	−7	−8	−10	−11	−13	−14	−16	−17	−18			
1 400	+ 9.9	0	+10	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+1	+1	0	0	0	− 1	−1	−2	−4	−5	−7	−8	−10	−12	−13	−15	−16	−18	−19	−20		
1 500	+10.8	0	+11	+1	+1	+2	+2	+2	+2	+2	+2	+2	+1	+1	0	0	0	− 1	− 1	−1	−2	−3	−5	−7	−8	−10	−12	−13	−15	−17	−18	−20	−21	−22	
1 600	+11.7	0	+12	+1	+1	+2	+2	+2	+2	+2	+2	+1	+1	+1	0	0	−1	− 1	− 2	−1	−2	−3	−5	−6	−8	−10	−12	−13	−15	−17	−19	−20	−21	−22	−23
1 700	+12.6	0	+12	+1	+1	+2	+2	+2	+2	+2	+1	+1	+1	0	0	−1	−1	− 2	− 2	−1	−2	−3	−5	−6	−8	−10	−12	−13	−15	−17	−19	−20	−22	−23	−24
1 800	+13.4	0	+13	+1	+1	+2	+2	+2	+2	+1	+1	+1	0	0	−1	−1	−1	− 2	− 3	−1	−2	−3	−5	−6	−8	−10	−12	−13	−15	−17	−19	−20	−22	−23	−25
1 900	+14.2	0	+14	+1	+1	+1	+2	+2	+1	+1	+1	+1	0	−1	−1	−1	−2	− 2	− 3	−1	−2	−3	−4	−6	−8	−10	−11	−13	−15	−17	−19	−21	−22	−24	−25
2 000	+14.9	0	+15	+1	+1	+1	+2	+1	+1	+1	+1	0	0	−1	−1	−2	−2	− 3	− 3	−1	−2	−3	−4	−6	−8	− 9	−11	−13	−15	−17	−19	−20	−22	−24	−25
2 200	+16.3	0	+16	+1	+1	+1	+1	+1	+1	+1	0	0	−1	−1	−2	−2	−3	− 3	− 4	−1	−2	−3	−4	−6	−7	− 9	−11	−13	−14	−16	−18	−20	−22	−24	−25
2 400	+17.6	0	+17	+1	+1	+1	+1	+1	+1	0	0	−1	−1	−2	−2	−3	−3	− 4	− 5	−1	−2	−3	−4	−5	−7	− 8	−10	−12	−14	−16	−18	−19	−21	−23	−25
2 600	+18.8	0	+19	0	+1	+1	+1	+1	0	0	0	−1	−2	−2	−3	−3	−4	− 5	− 5	−1	−1	−2	−4	−5	−7	− 8	−10	−11	−13	−15	−17	−19	−21	−22	−24
2 800	+19.9	0	+20	0	+1	+1	+1	0	0	0	−1	−1	−2	−3	−3	−4	−4	− 5	− 6	−1	−1	−2	−3	−5	−6	− 8	− 9	−11	−13	−14	−16	−18	−20	−22	−23
3 000	+20.9	0	+21	0	+1	+1	+1	0	0	0	−1	−2	−2	−3	−4	−4	−5	− 6	− 6	−1	−1	−2	−3	−4	−6	− 7	− 9	−10	−12	−14	−16	−17	−19	−21	−23
3 200	+21.8	0	+21	0	+1	+1	0	0	0	−1	−1	−2	−3	−3	−4	−5	−5	− 6	− 7	−1	−1	−2	−3	−4	−6	− 7	− 8	−10	−12	−13	−15	−17	−18	−20	−22
3 400	+22.6	0	+22	0	0	0	0	0	0	−1	−2	−2	−3	−4	−4	−5	−6	− 6	− 7	0	−1	−2	−3	−4	−5	− 7	− 8	−10	−11	−13	−14	−16	−18	−19	−21
3 600	+23.4	0	+23	0	0	0	0	0	−1	−1	−2	−2	−3	−4	−5	−5	−6	− 7	− 7	0	−1	−2	−3	−4	−5	− 6	− 8	− 9	−11	−12	−14	−15	−17	−18	−20
3 800	+24.1	0	+24	0	0	0	0	0	−1	−1	−2	−3	−3	−4	−5	−5	−6	− 7	− 8	0	−1	−2	−3	−4	−5	− 6	− 7	− 9	−10	−12	−13	−15	−16	−18	−19
4 000	+24.7	0	+24	0	0	0	0	0	−1	−2	−2	−3	−4	−4	−5	−6	−6	− 7	− 8	0	−1	−2	−3	−4	−5	− 6	− 7	− 9	−10	−11	−13	−14	−16	−17	−19
4 500	+26.1	0	+26	0	0	0	0	−1	−1	−2	−2	−3	−4	−5	−5	−6	−7	− 8	− 8	0	−1	−2	−2	−3	−4	− 5	− 7	− 8	− 9	−11	−12	−13	−15	−16	−17
5 000	+27.3	−1	+27	0	0	0	0	−1	−1	−2	−3	−3	−4	−5	−6	−7	−7	− 8	− 9	0	−1	−1	−2	−3	−4	− 5	− 6	− 8	− 9	−10	−11	−12	−14	−15	−16
5 500	+28.3	−1	+28	0	0	0	0	−1	−2	−2	−3	−4	−5	−5	−6	−7	−8	− 8	− 9	0	−1	−1	−2	−3	−4	− 5	− 6	− 7	− 8	− 9	−11	−12	−13	−14	−15
6 000	+29.2	−1	+29	0	0	0	−1	−1	−2	−2	−3	−4	−5	−6	−6	−7	−8	− 9	−10	0	−1	−1	−2	−3	−4	− 5	− 6	− 7	− 8	− 9	−10	−11	−12	−13	−15
6 500	+29.9	−1	+29	0	0	0	−1	−1	−2	−3	−3	−4	−5	−6	−7	−8	−8	− 9	−10	0	−1	−1	−2	−3	−4	− 4	− 6	− 7	− 8	− 9	−10	−11	−12	−13	−14
7 000	+30.5	−1	+30	0	0	0	−1	−1	−2	−3	−3	−4	−5	−6	−7	−8	−8	− 9	−10	0	−1	−1	−2	−2	−3	− 4	− 5	− 6	− 7	− 8	−10	−11	−12	−13	−14
7 500	+31.0	−1	+30	0	0	0	−1	−1	−2	−3	−3	−4	−5	−6	−7	−8	−9	− 9	−10	0	0	−1	−2	−2	−3	− 4	− 5	− 6	− 7	− 8	− 9	−10	−11	−13	−14
8 000	+31.5	−1	+31	0	0	0	−1	−1	−2	−3	−4	−4	−5	−6	−7	−8	−9	− 9	−10	0	0	−1	−2	−2	−3	− 4	− 5	− 6	− 7	− 8	− 9	−10	−11	−12	−13
8 500	+32.0	−1	+31	0	0	0	−1	−1	−2	−3	−4	−4	−5	−6	−7	−8	−9	−10	−10	0	0	−1	−2	−2	−3	− 4	− 5	− 6	− 7	− 8	− 9	−10	−11	−12	−13
9 000	+32.4	−1	+31	0	0	0	−1	−1	−2	−3	−4	−4	−5	−6	−7	−8	−9	−10	−10	0	0	−1	−2	−2	−3	− 4	− 5	− 6	− 7	− 8	− 9	−10	−11	−12	−13
9 500	+32.7	−1	+32	0	0	0	−1	−2	−2	−3	−4	−5	−5	−6	−7	−8	−9	−10	−11	0	0	−1	−1	−2	−3	− 4	− 5	− 6	− 7	− 8	− 9	−10	−11	−12	−13
10 000	+33.0	−1	+32	0	0	−1	−1	−2	−2	−3	−4	−5	−5	−6	−7	−8	−9	−10	−11	0	0	−1	−1	−2	−3	− 4	− 5	− 6	− 7	− 8	− 9	−10	−11	−12	−13
11 000	+33.6	−1	+32	0	0	−1	−1	−2	−2	−3	−4	−5	−6	−6	−7	−8	−9	−10	−11	0	0	−1	−1	−2	−3	− 4	− 5	− 6	− 7	− 8	− 8	− 9	−11	−11	−12
12 000	+34.0	−1	+33	0	0	−1	−1	−2	−2	−3	−4	−5	−6	−6	−7	−8	−9	−10	−11	0	0	−1	−1	−2	−3	− 4	− 5	− 5	− 6	− 7	− 8	− 9	−10	−11	−12
13 000	+34.4	−1	+33	0	0	−1	−1	−2	−2	−3	−4	−5	−6	−7	−7	−8	−9	−10	−11	0	0	−1	−1	−2	−3	− 4	− 4	− 5	− 6	− 7	− 8	− 9	−10	−11	−12
14 000	+34.8	−1	+33	0	0	−1	−1	−2	−2	−3	−4	−5	−6	−7	−7	−8	−9	−10	−11	0	0	−1	−1	−2	−3	− 4	− 4	− 5	− 6	− 7	− 8	− 9	−10	−11	−12
15 000	+35.1	−2	+33	0	0	−1	−1	−2	−2	−3	−4	−5	−6	−7	−7	−8	−9	−10	−11	0	0	−1	−1	−2	−3	− 4	− 4	− 5	− 6	− 7	− 8	− 9	−10	−11	−12

Zone E_1.

[Inner radius, 590 meters; outer radius, 870 meters. Eight compartments.]

Mean elevation of compartment, in feet	Correction for—			Correction for elevation of station—																									
	Topography	Compensation	Topography and compensation	Above compartment.													Below compartment.												
				200 feet	400 feet	600 feet	800 feet	1000 feet	1200 feet	1400 feet	1600 feet	1800 feet	2000 feet	2200 feet	2400 feet	2600 feet	200 feet	400 feet	600 feet	800 feet	1000 feet	1200 feet	1400 feet	1600 feet	1800 feet	2000 feet	2200 feet	2400 feet	2600 feet
200	+0.1	0	0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0												
400	+0.6	0	+1	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	−1	−1											
600	+1.2	0	+1	+1	+1	+2	+2	+2	+3	+3	+3	+2	+2	+2	+2	+2	−1	−2	−2										
800	+2.1	0	+2	+1	+2	+2	+3	+3	+3	+3	+3	+3	+3	+2	+2	+2	−1	−2	−3	−4									
1 000	+3.1	0	+3	+1	+2	+2	+3	+3	+3	+3	+3	+3	+3	+2	+2	+2	−1	−2	−4	−5	−6								
1 200	+4.3	0	+4	+1	+2	+3	+3	+3	+3	+3	+3	+3	+2	+2	+2	+1	−1	−3	−4	−6	−7	−9							
1 400	+5.5	0	+5	+1	+2	+3	+3	+3	+3	+3	+3	+2	+2	+2	+1	+1	−1	−3	−5	−6	−8	−10	−11						
1 600	+6.7	0	+7	+1	+2	+3	+3	+3	+3	+3	+2	+2	+2	+1	+1	0	−1	−3	−5	−7	−9	−10	−12	−13					
1 800	+8.0	0	+8	+1	+2	+2	+3	+3	+3	+2	+2	+2	+1	+1	0	0	−1	−3	−5	−7	−9	−11	−13	−14	−16				
2 000	+9.2	0	+9	+1	+2	+2	+3	+3	+2	+2	+2	+1	+1	0	0	−1	−1	−3	−5	−7	−9	−11	−13	−15	−17	−18			
2 200	+10.5	0	+10	+1	+2	+2	+2	+2	+2	+2	+1	+1	0	0	−1	−1	−1	−3	−5	−7	−9	−12	−14	−16	−18	−19	−21		
2 400	+11.6	0	+11	+1	+2	+2	+2	+2	+2	+1	+1	0	0	−1	−1	−2	−1	−3	−5	−7	−9	−12	−14	−16	−18	−20	−22	−23	
2 600	+12.8	0	+12	+1	+2	+2	+2	+2	+1	+1	+1	0	−1	−1	−2	−3	−1	−3	−5	−7	−9	−12	−14	−16	−19	−21	−23	−24	−25
2 800	+13.8	0	+14	+1	+1	+2	+2	+1	+1	+1	0	−1	−1	−2	−3	−3	−1	−3	−5	−7	−9	−11	−14	−16	−19	−21	−23	−25	−26
3 000	+14.8	0	+15	+1	+1	+2	+1	+1	0	0	0	−1	−2	−2	−3	−4	−1	−3	−4	−6	−9	−11	−14	−16	−19	−21	−23	−25	−27
3 200	+15.8	0	+15	+1	+1	+1	+1	+1	0	0	0	−1	−2	−3	−4	−4	−1	−3	−4	−6	−8	−11	−13	−16	−18	−21	−23	−25	−27
3 400	+16.7	0	+16	+1	+1	+1	+1	+1	0	0	−1	−2	−3	−3	−4	−5	−1	−2	−4	−6	−8	−10	−13	−15	−18	−20	−23	−25	−27
3 600	+17.6	0	+17	+1	+1	+1	+1	0	0	−1	−1	−2	−3	−4	−4	−5	−1	−2	−4	−6	−8	−10	−13	−15	−17	−20	−22	−25	−27
3 800	+18.4	0	+18	+1	+1	+1	+1	0	0	−1	−1	−2	−3	−4	−5	−5	−1	−2	−4	−6	−8	−10	−12	−15	−17	−20	−22	−24	−27
4 000	+19.1	0	+19	+1	+1	+1	+1	0	0	−1	−2	−3	−4	−4	−5	−6	−1	−2	−4	−5	−7	−10	−12	−14	−17	−19	−22	−24	−26
4 500	+20.8	0	+20	0	+1	+1	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−1	−2	−3	−5	−7	−9	−11	−13	−15	−18	−20	−22	−25
5 000	+22.3	−1	+22	0	0	0	0	−1	−1	−2	−3	−4	−5	−6	−7	−7	−1	−2	−3	−5	−6	−8	−10	−12	−14	−17	−19	−21	−23
5 500	+23.6	−1	+23	0	0	0	0	−1	−2	−3	−3	−4	−5	−6	−7	−8	−1	−2	−3	−4	−6	−8	−10	−11	−13	−16	−18	−20	−22
6 000	+24.7	−1	+24	0	0	0	−1	−1	−2	−3	−3	−5	−6	−7	−8	−9	−1	−1	−3	−4	−5	−7	−9	−11	−13	−15	−17	−19	−21
6 500	+25.7	−1	+25	0	0	0	−1	−1	−2	−3	−4	−5	−6	−7	−8	−9	−1	−1	−2	−4	−5	−7	−8	−10	−12	−14	−16	−18	−19
7 000	+26.5	−1	+26	0	0	0	−1	−2	−2	−3	−4	−5	−6	−7	−8	−9	0	−1	−2	−3	−5	−6	−8	−10	−12	−13	−15	−17	−19
7 500	+27.3	−1	+26	0	0	0	−1	−2	−3	−4	−4	−6	−7	−8	−9	−10	0	−1	−2	−3	−5	−6	−8	−9	−11	−13	−14	−16	−18
8 000	+28.0	−1	+27	0	0	0	−1	−2	−3	−4	−5	−6	−7	−8	−9	−10	0	−1	−2	−3	−4	−6	−7	−9	−11	−12	−14	−16	−17
8 500	+28.6	−1	+28	0	0	−1	−1	−2	−3	−4	−5	−6	−7	−8	−9	−10	0	−1	−2	−3	−4	−6	−7	−9	−10	−12	−13	−15	−17
9 000	+29.1	−1	+28	0	0	−1	−1	−2	−3	−4	−5	−6	−7	−8	−9	−10	0	−1	−2	−3	−4	−6	−7	−9	−10	−12	−13	−15	−16
9 500	+29.6	−1	+29	0	0	−1	−1	−2	−3	−4	−5	−6	−7	−8	−9	−10	0	−1	−2	−3	−4	−5	−7	−8	−10	−11	−13	−14	−16
10 000	+30.0	−1	+29	0	0	−1	−1	−2	−3	−4	−5	−6	−8	−9	−10	−11	0	−1	−2	−3	−4	−5	−7	−8	−10	−11	−12	−14	−15
11 000	+30.8	−1	+30	0	0	−1	−1	−2	−3	−4	−6	−7	−8	−9	−10	−11	0	−1	−2	−2	−4	−5	−6	−8	−9	−11	−12	−13	−15
12 000	+31.5	−1	+30	0	0	−1	−2	−2	−3	−5	−6	−7	−8	−9	−10	−11	0	−1	−2	−2	−4	−5	−6	−8	−9	−10	−12	−13	−14
13 000	+32.1	−1	+31	0	0	−1	−2	−3	−4	−5	−6	−7	−8	−9	−10	−11	0	−1	−2	−2	−4	−5	−6	−7	−9	−10	−11	−13	−14
14 000	+32.6	−1	+31	0	0	−1	−2	−3	−4	−5	−6	−7	−8	−9	−10	−11	0	−1	−1	−2	−3	−5	−6	−7	−9	−10	−11	−12	−14
15 000	+33.0	−2	+31	0	0	−1	−2	−3	−4	−5	−6	−7	−8	−9	−10	−11	0	−1	−1	−2	−3	−5	−6	−7	−8	−10	−11	−12	−13

Zone E_2.

[Inner radius, 870 meters; outer radius, 1280 meters. Eight compartments.]

Mean elevation of compartment, in feet	Correction for—			Correction for elevation of station—																															
	Topography	Compensation	Topography and compensation	Above compartment																Below compartment															
				200 feet	400 feet	600 feet	800 feet	1000 feet	1200 feet	1400 feet	1600 feet	1800 feet	2000 feet	2200 feet	2400 feet	2600 feet	2800 feet	3000 feet	3200 feet	200 feet	400 feet	600 feet	800 feet	1000 feet	1200 feet	1400 feet	1600 feet	1800 feet	2000 feet	2200 feet	2400 feet	2600 feet	2800 feet	3000 feet	3200 feet
200	+ 0.1	0	0	0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+ 1	+ 1	+ 1	0															
400	+ 0.4	0	0	0	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+2	+ 2	+ 2	+ 2	0	−1														
600	+ 0.8	0	+ 1	+1	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+3	+3	+ 3	+ 3	+ 3	−1	−1	−2													
800	+ 1.5	0	+ 1	+1	+1	+2	+2	+3	+3	+3	+4	+4	+4	+4	+3	+3	+ 3	+ 3	+ 3	−1	−1	−2	−3												
1 000	+ 2.3	0	+ 2	+1	+2	+2	+3	+3	+3	+4	+4	+4	+4	+4	+4	+4	+ 4	+ 4	+ 3	−1	−2	−3	−4	−4											
1 200	+ 3.2	0	+ 3	+1	+2	+2	+3	+3	+4	+4	+4	+4	+4	+4	+4	+4	+ 4	+ 4	+ 3	−1	−2	−3	−4	−5	− 6										
1 400	+ 4.2	0	+ 4	+1	+2	+3	+3	+4	+4	+4	+4	+5	+4	+4	+4	+4	+ 4	+ 4	+ 3	−1	−2	−4	−5	−6	− 7	− 8									
1 600	+ 5.3	0	+ 5	+1	+2	+3	+3	+4	+4	+4	+5	+5	+5	+4	+4	+4	+ 4	+ 4	+ 3	−1	−2	−4	−5	−7	− 8	− 9	−11								
1 800	+ 6.4	0	+ 6	+1	+2	+3	+4	+4	+4	+5	+5	+5	+5	+4	+4	+4	+ 4	+ 3	+ 3	−1	−3	−4	−6	−7	− 9	−10	−12	−13							
2 000	+ 7.6	0	+ 7	+1	+2	+3	+4	+4	+4	+4	+5	+5	+4	+4	+4	+4	+ 3	+ 3	+ 3	−1	−3	−4	−6	−8	− 9	−11	−12	−14	−15						
2 200	+ 8.9	0	+ 9	+1	+2	+3	+4	+4	+4	+4	+4	+4	+4	+4	+4	+3	+ 3	+ 3	+ 2	−1	−3	−4	−6	−8	−10	−12	−13	−15	−16	−18					
2 400	+10.1	0	+10	+1	+2	+3	+3	+4	+4	+4	+4	+4	+4	+4	+3	+3	+ 3	+ 2	+ 2	−1	−3	−5	−6	−8	−10	−12	−14	−16	−17	−19	−20				
2 600	+11.4	0	+11	+1	+2	+3	+3	+4	+4	+4	+4	+4	+4	+3	+3	+3	+ 2	+ 2	+ 1	−1	−3	−5	−6	−8	−10	−12	−14	−16	−18	−20	−21	−23			
2 800	+12.6	0	+12	+1	+2	+3	+3	+4	+4	+4	+4	+4	+3	+3	+3	+2	+ 2	+ 1	+ 1	−1	−3	−5	−6	−8	−11	−13	−15	−17	−19	−21	−22	−24	−25		
3 000	+13.9	0	+13	+1	+2	+3	+3	+4	+4	+4	+4	+3	+3	+3	+2	+2	+ 1	+ 1	0	−1	−3	−5	−6	−8	−11	−13	−15	−17	−19	−21	−23	−25	−26	−28	
3 200	+15.1	0	+15	+1	+2	+3	+3	+3	+3	+3	+3	+3	+3	+2	+2	+1	+ 1	0	0	−1	−3	−5	−6	−8	−11	−13	−15	−17	−19	−22	−24	−26	−27	−29	−30
3 400	+16.3	−1	+16	+1	+2	+3	+3	+3	+3	+3	+3	+3	+2	+2	+1	+1	0	0	− 1	−1	−3	−4	−6	−8	−11	−13	−15	−17	−20	−22	−24	−26	−28	−30	−31
3 600	+17.4	−1	+17	+1	+2	+2	+3	+3	+3	+3	+3	+2	+2	+1	+1	0	0	− 1	− 1	−1	−3	−4	−6	−8	−10	−13	−15	−17	−20	−22	−24	−26	−28	−30	−32
3 800	+18.5	−1	+18	+1	+2	+2	+3	+3	+3	+3	+2	+2	+2	+1	+1	0	− 1	− 1	− 2	−1	−3	−4	−6	−8	−10	−13	−15	−17	−20	−22	−24	−27	−29	−31	−33
4 000	+19.6	−1	+19	+1	+2	+2	+3	+3	+3	+2	+2	+2	+1	+1	0	0	− 1	− 2	− 2	−1	−3	−4	−6	−8	−10	−12	−15	−17	−20	−22	−24	−27	−29	−31	−33
4 200	+20.6	−1	+20	+1	+2	+2	+2	+2	+2	+2	+2	+1	+1	0	0	−1	− 1	− 2	− 3	−1	−2	−4	−6	−8	−10	−12	−14	−17	−19	−22	−24	−27	−29	−31	−33
4 400	+21.6	−1	+21	+1	+2	+2	+2	+2	+2	+2	+2	+1	+1	0	−1	−1	− 2	− 3	− 3	−1	−2	−4	−6	−8	−10	−12	−14	−17	−19	−22	−24	−26	−29	−31	−33
4 600	+22.6	−1	+22	+1	+1	+2	+2	+2	+2	+2	+1	+1	0	0	−1	−2	− 2	− 3	− 4	−1	−2	−4	−6	−7	− 9	−12	−14	−16	−19	−21	−24	−26	−29	−31	−33
4 800	+23.5	−1	+23	+1	+1	+2	+2	+2	+2	+1	+1	+1	0	−1	−1	−2	− 3	− 3	− 4	−1	−2	−4	−5	−7	− 9	−11	−14	−16	−18	−21	−23	−26	−28	−31	−33
5 000	+24.4	−1	+24	+1	+1	+2	+2	+2	+2	+1	+1	0	0	−1	−2	−2	− 3	− 4	− 5	−1	−2	−4	−5	−7	− 9	−11	−13	−16	−18	−21	−23	−26	−28	−31	−33
5 200	+25.3	−1	+25	+1	+1	+2	+2	+2	+1	+1	+1	0	−1	−1	−2	−3	− 3	− 4	− 5	−1	−2	−4	−5	−7	− 9	−11	−13	−15	−18	−20	−23	−25	−28	−30	−33
5 400	+26.1	−1	+25	+1	+1	+2	+2	+1	+1	+1	0	0	−1	−2	−2	−3	− 4	− 5	− 5	−1	−2	−3	−5	−7	− 9	−11	−13	−15	−17	−20	−22	−25	−27	−30	−32
5 600	+26.9	−1	+26	+1	+1	+2	+2	+1	+1	+1	0	0	−1	−2	−3	−3	− 4	− 5	− 6	−1	−2	−3	−5	−7	− 8	−10	−12	−15	−17	−19	−22	−24	−27	−29	−32
5 800	+27.7	−1	+27	+1	+1	+1	+1	+1	+1	0	0	−1	−1	−2	−3	−4	− 4	− 5	− 6	−1	−2	−3	−5	−6	− 8	−10	−12	−14	−17	−19	−21	−24	−26	−29	−31
6 000	+28.4	−1	+27	+1	+1	+1	+1	+1	+1	0	0	−1	−2	−2	−3	−4	− 5	− 6	− 6	−1	−2	−3	−5	−6	− 8	−10	−12	−14	−16	−19	−21	−23	−26	−28	−31
6 500	+30.1	−1	+29	+1	+1	+1	+1	+1	0	0	−1	−1	−2	−3	−4	−5	− 5	− 6	− 7	−1	−2	−3	−4	−6	− 7	− 9	−11	−13	−15	−18	−20	−22	−25	−27	−29
7 000	+31.6	−1	+31	0	+1	+1	+1	0	0	−1	−1	−2	−3	−3	−4	−5	− 6	− 7	− 8	−1	−2	−3	−4	−5	− 7	− 9	−11	−13	−15	−17	−19	−21	−23	−26	−28
7 500	+33.0	−1	+32	0	+1	+1	+1	0	0	−1	−1	−2	−3	−4	−5	−6	− 7	− 7	− 8	−1	−1	−3	−4	−5	− 7	− 8	−10	−12	−14	−16	−18	−20	−22	−24	−27
8 000	+34.3	−1	+33	0	+1	+1	0	0	0	−1	−2	−3	−3	−4	−5	−6	− 7	− 8	− 9	−1	−1	−2	−4	−5	− 6	− 8	−10	−12	−13	−15	−17	−19	−21	−23	−25
8 500	+35.4	−1	+34	0	0	0	0	0	−1	−1	−2	−3	−4	−5	−6	−7	− 7	− 8	− 9	−1	−1	−2	−3	−5	− 6	− 8	− 9	−11	−13	−15	−17	−18	−20	−22	−24
9 000	+36.5	−1	+35	0	0	0	0	0	−1	−2	−2	−3	−4	−5	−6	−7	− 8	− 9	−10	−1	−1	−2	−3	−4	− 6	− 7	− 9	−11	−12	−14	−16	−18	−20	−22	−24
9 500	+37.4	−1	+36	0	0	0	0	−1	−1	−2	−3	−3	−4	−5	−6	−7	− 8	− 9	−10	0	−1	−2	−3	−4	− 6	− 7	− 9	−10	−12	−14	−15	−17	−19	−21	−23
10 000	+38.3	−2	+37	0	0	0	0	−1	−1	−2	−3	−4	−5	−5	−6	−7	− 8	− 9	−10	0	−1	−2	−3	−4	− 5	− 7	− 8	−10	−11	−13	−15	−17	−18	−20	−22
11 000	+39.9	−2	+38	0	0	0	0	−1	−1	−2	−3	−4	−5	−6	−7	−8	− 9	−10	−11	0	−1	−2	−3	−4	− 5	− 6	− 8	− 9	−11	−12	−14	−16	−17	−19	−21
12 000	+41.2	−2	+39	0	0	0	−1	−1	−2	−2	−3	−4	−5	−6	−7	−8	− 9	−10	−11	0	−1	−2	−2	−4	− 5	− 6	− 7	− 9	−10	−12	−13	−15	−17	−18	−20
13 000	+42.4	−2	+40	0	0	0	−1	−1	−2	−3	−4	−4	−5	−7	−8	− 9	−10	−11	−12	0	−1	−1	−2	−3	− 4	− 6	− 7	− 8	−10	−11	−13	−14	−16	−17	−19
14 000	+43.4	−2	+41	0	0	0	−1	−1	−2	−3	−4	−5	−6	−7	−8	− 9	−10	−11	−12	0	−1	−1	−2	−3	− 4	− 5	− 7	− 8	− 9	−11	−12	−14	−15	−17	−18
15 000	+44.3	−2	+42	0	0	0	−1	−1	−2	−3	−4	−5	−6	−7	−8	− 9	−10	−11	−12	0	−1	−1	−2	−3	− 4	− 5	− 7	− 8	− 9	−11	−12	−13	−15	−16	−18

Zone F_1.

[Inner radius, 1280 meters; outer radius, 1680 meters. Ten compartments.]

Mean elevation of compartment, in feet	Correction for—			Correction for elevation of station—																															
				Above compartment																Below compartment															
	Topography	Compensation	Topography and compensation	200 feet	400 feet	600 feet	800 feet	1000 feet	1200 feet	1400 feet	1600 feet	1800 feet	2000 feet	2200 feet	2400 feet	2600 feet	2800 feet	3000 feet	3200 feet	200 feet	400 feet	600 feet	800 feet	1000 feet	1200 feet	1400 feet	1600 feet	1800 feet	2000 feet	2200 feet	2400 feet	2600 feet	2800 feet	3000 feet	3200 feet
200	0.0	0	0	0	0	0	0	0	0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	0															
400	+ 0.1	0	0	0	0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	0														
600	+ 0.3	0	0	0	0	+1	+1	+1	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	0	0	−1													
800	+ 0.6	0	+ 1	0	+1	+1	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	0	−1	−1	−1												
1 000	+ 0.9	0	+ 1	0	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+3	+3	+3	+3	+3	0	−1	−1	−2	−2											
1 200	+ 1.3	0	+ 1	0	+1	+1	+1	+2	+2	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	0	−1	−1	−2	−2	−8										
1 400	+ 1.8	0	+ 2	0	+1	+1	+2	+2	+2	+2	+3	+3	+3	+8	+3	+3	+3	+3	+3	0	−1	−2	−2	−3	−3	−4									
1 600	+ 2.3	0	+ 2	+1	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	−1	−1	−2	−2	−3	−3	−4	−5								
1 800	+ 2.8	0	+ 3	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	−1	−1	−2	−2	−3	−4	−4	−5	−6							
2 000	+ 3.4	0	+ 3	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+4	+4	+4	+4	+4	+3	−1	−1	−2	−3	−3	−4	−5	−6	−6	− 7						
2 200	+ 4.0	0	+ 4	+1	+1	+2	+2	+3	+3	+3	+3	+3	+4	+4	+4	+4	+4	+4	+3	−1	−1	−2	−3	−4	−4	−5	−6	−7	− 7	− 8					
2 400	+ 4.7	0	+ 4	+1	+1	+2	+2	+3	+3	+3	+3	+3	+4	+4	+4	+4	+4	+4	+3	−1	−1	−2	−3	−4	−5	−5	−6	−7	− 8	− 9	− 9				
2 600	+ 5.4	0	+ 5	+1	+1	+2	+2	+3	+3	+3	+3	+3	+4	+4	+4	+4	+4	+3	+3	−1	−1	−2	−3	−4	−5	−6	−7	−8	− 8	− 9	−10	−11			
2 800	+ 6.1	0	+ 6	+1	+1	+2	+2	+3	+3	+3	+3	+3	+4	+4	+4	+4	+3	+3	+3	−1	−2	−2	−3	−4	−5	−6	−7	−8	− 9	−10	−11	−11	−12		
3 000	+ 6.8	0	+ 6	+1	+1	+2	+2	+3	+3	+3	+3	+3	+4	+4	+4	+3	+3	+3	+3	−1	−2	−2	−3	−4	−5	−6	−7	−8	− 9	−10	−11	−12	−13	−13	
3 200	+ 7.5	0	+ 7	+1	+1	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	−1	−2	−2	−3	−4	−5	−6	−7	−8	−10	−11	−11	−12	−13	−14	−15
3 400	+ 8.2	0	+ 8	+1	+1	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	−1	−2	−2	−3	−4	−5	−7	−8	−9	−10	−11	−12	−13	−14	−15	−16
3 600	+ 8.9	0	+ 9	+1	+1	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	−1	−2	−2	−3	−4	−6	−7	−8	−9	−10	−11	−12	−13	−14	−15	−16
3 800	+ 9.6	0	+ 9	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+2	−1	−2	−2	−3	−4	−6	−7	−8	−9	−10	−11	−12	−14	−15	−16	−17
4 000	+10.3	0	+10	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+3	+2	+2	−1	−2	−2	−3	−4	−6	−7	−8	−9	−10	−11	−13	−14	−15	−16	−17
4 200	+11.0	−1	+10	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+2	+2	+2	−1	−2	−2	−3	−4	−6	−7	−8	−9	−10	−12	−13	−14	−15	−16	−17
4 400	+11.7	−1	+11	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+3	+3	+2	+2	+2	+2	−1	−2	−2	−3	−4	−6	−7	−8	−9	−10	−12	−13	−14	−15	−17	−18
4 600	+12.4	−1	+12	+1	+1	+2	+2	+2	+2	+3	+3	+3	+3	+2	+2	+2	+2	+2	+1	−1	−2	−2	−3	−4	−5	−7	−8	−9	−10	−12	−13	−14	−15	−17	−18
4 800	+13.0	−1	+12	+1	+1	+2	+2	+2	+2	+2	+3	+2	+2	+2	+2	+2	+2	+1	+1	−1	−1	−2	−3	−4	−5	−7	−8	−9	−10	−12	−13	−14	−16	−17	−18
5 000	+13.7	−1	+13	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+1	+1	−1	−1	−2	−3	−4	−5	−7	−8	−9	−10	−12	−13	−14	−16	−17	−18
5 200	+14.3	−1	+14	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+1	+1	+1	−1	−1	−2	−3	−4	−5	−6	−8	−9	−10	−12	−13	−14	−16	−17	−18
5 400	+14.9	−1	+14	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+2	+1	+1	+1	+1	−1	−1	−2	−3	−4	−5	−6	−8	−9	−10	−11	−13	−14	−16	−17	−18
5 600	+15.5	−1	+15	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+1	+1	+1	+1	0	−1	−1	−2	−3	−4	−5	−6	−7	−9	−10	−11	−13	−14	−16	−17	−18
5 800	+16.1	−1	+15	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+1	+1	+1	0	0	−1	−1	−2	−3	−4	−5	−6	−7	−9	−10	−11	−13	−14	−15	−17	−18
6 000	+16.7	−1	+16	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+1	+1	+1	+1	0	0	−1	−1	−2	−3	−4	−5	−6	−7	−8	−10	−11	−12	−14	−15	−17	−18
6 400	+17.8	−1	+17	+1	+1	+1	+1	+2	+2	+2	+2	+1	+1	+1	+1	+1	0	0	0	−1	−1	−2	−3	−4	−5	−6	−7	−8	− 9	−11	−12	−13	−15	−16	−18
6 800	+18.8	−1	+18	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	0	0	0	−1	−1	−1	−2	−3	−4	−5	−6	−7	−8	− 9	−10	−12	−13	−14	−16	−17
7 200	+19.8	−1	+19	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	0	0	−1	−1	−1	−1	−2	−3	−3	−4	−5	−7	−8	− 9	−10	−11	−13	−14	−15	−17
7 600	+20.7	−1	+20	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	0	0	−1	−1	−2	0	−1	−2	−3	−3	−4	−5	−6	−7	− 9	−10	−11	−12	−14	−15	−16
8 000	+21.6	−1	+21	0	+1	+1	+1	+1	+1	+1	+1	+1	0	0	0	−1	−1	−1	−2	0	−1	−2	−2	−3	−4	−5	−6	−7	− 8	− 9	−11	−12	−13	−15	−16
8 400	+22.4	−1	+21	0	+1	+1	+1	+1	+1	+1	+1	0	0	0	−1	−1	−1	−2	−2	0	−1	−2	−2	−3	−4	−5	−6	−7	− 8	− 9	−10	−12	−13	−14	−15
8 800	+23.2	−1	+22	0	+1	+1	+1	+1	+1	+1	0	0	0	0	−1	−1	−1	−2	−3	0	−1	−2	−2	−3	−4	−5	−6	−7	− 8	− 9	−10	−11	−12	−14	−15
9 200	+23.9	−1	+23	0	+1	+1	+1	+1	+1	+1	0	0	0	−1	−1	−1	−2	−2	−3	0	−1	−1	−2	−3	−4	−4	−5	−6	− 7	− 9	−10	−11	−12	−13	−15
9 600	+24.6	−1	+23	0	+1	+1	+1	+1	+1	0	0	0	0	−1	−1	−2	−2	−2	−3	0	−1	−1	−2	−3	−3	−4	−5	−6	− 7	− 8	− 9	−11	−12	−13	−14
10 000	+25.2	−1	+24	0	0	+1	+1	+1	0	0	0	0	−1	−1	−1	−2	−2	−3	−3	0	−1	−1	−2	−3	−3	−4	−5	−6	− 7	− 8	− 9	−10	−11	−13	−14
11 000	+26.7	−1	+25	0	0	0	0	0	0	0	0	−1	−1	−1	−2	−2	−3	−3	−4	0	−1	−1	−2	−2	−3	−4	−5	−6	− 6	− 7	− 8	−10	−11	−12	−13
12 000	+28.0	−1	+27	0	0	0	0	0	0	0	0	−1	−1	−2	−2	−3	−3	−4	−4	0	−1	−1	−2	−2	−3	−4	−4	−5	− 6	− 7	− 8	− 9	−10	−11	−12
13 000	+29.1	−2	+28	0	0	0	0	0	0	0	−1	−1	−1	−2	−2	−3	−3	−4	−4	0	−1	−1	−1	−2	−3	−3	−4	−5	− 6	− 7	− 8	− 8	− 9	−10	−11
14 000	+30.1	−2	+28	0	0	0	0	0	0	−1	−1	−1	−2	−2	−3	−3	−4	−4	−5	0	−1	−1	−1	−2	−2	−3	−4	−5	− 5	− 6	− 7	− 8	− 9	−10	−11
15 000	+31.0	−2	+29	0	0	0	0	0	0	−1	−1	−1	−2	−2	−3	−3	−4	−4	−5	0	0	−1	−1	−2	−2	−3	−4	−4	− 5	− 6	− 7	− 8	− 9	−10	−10

Zone F_2.

[Inner radius, 1680 meters; outer radius, 2290 meters. Ten compartments.]

Mean elevation of compartment, in feet	Correction for—			Correction for elevation of station—																															
	Topography	Compensation	Topography and compensation	Above compartment																Below compartment															
				200 feet	400 feet	600 feet	800 feet	1000 feet	1200 feet	1400 feet	1600 feet	1800 feet	2000 feet	2200 feet	2400 feet	2600 feet	2800 feet	3000 feet	3200 feet	200 feet	400 feet	600 feet	800 feet	1000 feet	1200 feet	1400 feet	1600 feet	1800 feet	2000 feet	2200 feet	2400 feet	2600 feet	2800 feet	3000 feet	3200 feet
200	0.0	0	0	0	0	0	0	0	0	0	0	+1	+1	+1	+1	+1	+1	+1	+1	0															
400	+ 0.1	0	0	0	0	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	0														
600	+ 0.3	0	0	0	0	+1	+1	+1	+1	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	0	0	−1													
800	+ 0.5	0	0	0	+1	+1	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+3	+3	0	−1	−1	−1												
1 000	+ 0.8	0	+ 1	0	+1	+1	+1	+1	+2	+2	+2	+2	+2	+3	+3	+3	+3	+3	+3	0	−1	−1	−1	−2											
1 200	+ 1.2	0	+ 1	0	+1	+1	+1	+2	+2	+2	+2	+3	+3	+3	+3	+3	+3	+4	+4	0	−1	−1	−2	−2	−2										
1 400	+ 1.6	0	+ 1	0	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+4	+4	+4	+4	+4	0	−1	−1	−2	−2	−3	−3									
1 600	+ 2.0	0	+ 2	0	+1	+1	+2	+2	+2	+3	+3	+3	+4	+4	+4	+4	+4	+4	+4	0	−1	−2	−2	−3	−3	−4	−4								
1 800	+ 2.5	0	+ 2	+1	+1	+1	+2	+2	+3	+3	+3	+4	+4	+4	+4	+4	+5	+5	+5	−1	−1	−2	−2	−3	−3	−4	−5	− 5							
2 000	+ 3.1	0	+ 3	+1	+1	+2	+2	+2	+3	+3	+4	+4	+4	+4	+5	+5	+5	+5	+5	−1	−1	−2	−2	−3	−4	−4	−5	− 6	− 6						
2 200	+ 3.7	0	+ 3	+1	+1	+2	+2	+3	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	−1	−1	−2	−3	−3	−4	−5	−5	− 6	− 7	− 7					
2 400	+ 4.3	0	+ 4	+1	+1	+2	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	+5	−1	−1	−2	−3	−4	−4	−5	−6	− 7	− 7	− 8	− 9				
2 600	+ 5.0	0	+ 4	+1	+1	+2	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	+5	−1	−1	−2	−3	−4	−5	−5	−6	− 7	− 8	− 8	− 9	−10			
2 800	+ 5.6	0	+ 5	+1	+1	+2	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	+5	−1	−1	−2	−3	−4	−5	−6	−6	− 7	− 8	− 9	−10	−11	−11		
3 000	+ 6.4	−1	+ 6	+1	+1	+2	+3	+3	+3	+4	+4	+5	+5	+5	+5	+5	+5	+6	+6	−1	−2	−2	−3	−4	−5	−6	−7	− 8	− 9	− 9	−10	−11	−12	−13	
3 200	+ 7.1	−1	+ 7	+1	+1	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+6	+6	+6	−1	−2	−2	−3	−4	−5	−6	−7	− 8	− 9	−10	−11	−12	−13	−13	−14
3 400	+ 7.9	−1	+ 7	+1	+1	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	+6	+6	−1	−2	−3	−3	−4	−5	−6	−7	− 8	− 9	−10	−11	−12	−13	−14	−15
3 600	+ 8.6	−1	+ 8	+1	+1	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	+6	+5	−1	−2	−3	−4	−4	−6	−7	−8	− 9	−10	−11	−12	−13	−14	−15	−16
3 800	+ 9.4	−1	+ 9	+1	+1	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	+5	+5	−1	−2	−3	−4	−5	−6	−7	−8	− 9	−10	−11	−12	−13	−14	−15	−16
4 000	+10.2	−1	+10	+1	+1	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	+5	+5	−1	−2	−3	−4	−5	−6	−7	−8	− 9	−10	−11	−12	−14	−15	−16	−17
4 200	+11.0	−1	+10	+1	+1	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	+5	+5	−1	−2	−3	−4	−5	−6	−7	−8	− 9	−10	−12	−13	−14	−15	−16	−17
4 400	+11.8	−1	+11	+1	+1	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	+5	+5	−1	−2	−3	−4	−5	−6	−7	−8	− 9	−11	−12	−13	−14	−15	−17	−18
4 600	+12.7	−1	+12	+1	+1	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	+5	+5	−1	−2	−3	−4	−5	−6	−7	−8	−10	−11	−12	−13	−14	−16	−17	−18
4 800	+13.5	−1	+13	+1	+1	+2	+3	+3	+4	+4	+4	+5	+5	+5	+5	+5	+5	+5	+5	−1	−2	−3	−4	−5	−6	−7	−8	−10	−11	−12	−13	−15	−16	−17	−18
5 000	+14.3	−1	+13	+1	+1	+2	+3	+3	+4	+4	+4	+4	+5	+5	+5	+5	+5	+5	+5	−1	−2	−3	−4	−5	−6	−7	−8	−10	−11	−12	−14	−15	−16	−17	−19
5 200	+15.1	−1	+14	+1	+1	+2	+3	+3	+3	+4	+4	+4	+4	+5	+5	+5	+5	+5	+4	−1	−2	−3	−4	−5	−6	−7	−8	−10	−11	−12	−14	−15	−16	−18	−19
5 400	+15.9	−1	+15	+1	+1	+2	+3	+3	+3	+4	+4	+4	+4	+4	+5	+5	+4	+4	+4	−1	−2	−3	−4	−5	−6	−7	−8	−10	−11	−12	−14	−15	−16	−18	−19
5 600	+16.7	−1	+16	+1	+1	+2	+3	+3	+3	+4	+4	+4	+4	+4	+4	+4	+4	+4	+4	−1	−2	−3	−4	−5	−6	−7	−8	−10	−11	−12	−14	−15	−17	−18	−19
5 800	+17.4	−1	+16	+1	+1	+2	+3	+3	+3	+4	+4	+4	+4	+4	+4	+4	+4	+4	+4	−1	−2	−3	−4	−5	−6	−7	−8	−10	−11	−12	−14	−15	−17	−18	−20
6 000	+18.2	−1	+17	+1	+1	+2	+2	+3	+3	+4	+4	+4	+4	+4	+4	+4	+4	+4	+4	−1	−2	−3	−4	−5	−6	−7	−8	−10	−11	−12	−14	−15	−17	−18	−20
6 400	+19.7	−1	+19	+1	+1	+2	+2	+3	+3	+3	+4	+4	+4	+4	+4	+4	+4	+4	+3	−1	−2	−3	−4	−5	−6	−7	−8	−10	−11	−12	−14	−15	−17	−18	−20
6 800	+21.2	−1	+20	+1	+1	+2	+2	+3	+3	+3	+3	+3	+4	+4	+4	+3	+3	+3	+3	−1	−2	−3	−4	−5	−6	−7	−8	− 9	−11	−12	−14	−15	−17	−18	−20
7 200	+22.6	−1	+21	+1	+1	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	+3	−1	−2	−2	−3	−4	−6	−7	−8	− 9	−11	−12	−13	−15	−16	−18	−19
7 600	+24.0	−1	+23	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+3	+3	+3	+3	+2	+2	−1	−1	−2	−3	−4	−5	−7	−8	− 9	−10	−12	−13	−15	−16	−18	−19
8 000	+25.3	−1	+24	+1	+1	+2	+2	+2	+3	+3	+3	+3	+3	+3	+3	+2	+2	+2	+2	−1	−1	−2	−3	−4	−5	−6	−8	− 9	−10	−11	−13	−14	−16	−17	−19
8 400	+26.6	−2	+25	+1	+1	+2	+2	+2	+2	+2	+3	+3	+3	+2	+2	+2	+2	+2	+1	−1	−1	−2	−3	−4	−5	−6	−7	− 9	−10	−11	−13	−14	−15	−17	−18
8 800	+27.8	−2	+26	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+1	+1	−1	−1	−2	−3	−4	−5	−6	−7	− 8	−10	−11	−12	−14	−15	−17	−18
9 200	+28.9	−2	+27	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+2	+2	+1	+1	+1	−1	−1	−2	−3	−4	−5	−6	−7	− 8	− 9	−11	−12	−13	−15	−16	−18
9 600	+30.0	−2	+28	+1	+1	+1	+2	+2	+2	+2	+2	+2	+2	+2	+2	+1	+1	+1	0	−1	−1	−2	−3	−4	−5	−6	−7	− 8	− 9	−10	−12	−13	−14	−16	−17
10 000	+31.1	−2	+29	0	+1	+1	+1	+2	+2	+2	+2	+2	+2	+1	+1	+1	+1	0	0	−1	−1	−2	−3	−4	−4	−5	−7	− 8	− 9	−10	−11	−13	−14	−15	−17
11 000	+33.6	−2	+32	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	0	0	−1	−1	−1	−2	−2	−3	−4	−5	−6	− 7	− 8	− 9	−11	−12	−13	−14	−16
12 000	+35.8	−2	+34	0	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	0	0	0	−1	−1	0	−1	−2	−2	−3	−4	−5	−6	− 7	− 8	− 9	−10	−11	−12	−14	−15
13 000	+37.8	−2	+35	0	+1	+1	+1	+1	+1	+1	+1	+1	0	0	0	−1	−1	−1	−2	0	−1	−1	−2	−3	−4	−4	−5	− 6	− 7	− 8	− 9	−10	−12	−13	−14
14 000	+39.5	−3	+37	0	+1	+1	+1	+1	+1	+1	+1	0	0	0	−1	−1	−1	−2	−2	0	−1	−1	−2	−3	−3	−4	−5	− 6	− 7	− 8	− 9	−10	−11	−12	−13
15 000	+41.1	−3	+38	0	0	+1	+1	+1	0	0	0	0	0	−1	−1	−1	−2	−2	−3	0	−1	−1	−2	−2	−3	−4	−5	− 5	− 6	− 7	− 8	− 9	−10	−11	−13

Chapter II.—CORRECTIONS FOR TOPOGRAPHY AND ISOSTATIC COMPENSATION AND PRINCIPAL FACTS FOR GRAVITY STATIONS.

MEAN ELEVATIONS AND CORRECTIONS FOR TOPOGRAPHY AND ISOSTATIC COMPENSATION FOR SEPARATE ZONES AT STATIONS IN THE UNITED STATES.

There are given in the following tables (pp. 20 to 45) the combined effect of the topography and compensation for all zones and the separate effects of the topography and the compensation for each of the lettered zones for the 219 stations in the United States. In addition, there is given the mean elevation of the topography for each of the lettered zones for all of the stations from No. 57 to No. 219. No record of the elevation of the topography for the separate zones was made for the first 56 stations, when the topography and compensation effects were computed, and it was not deemed expedient to read the maps again to obtain that information for publication here. With the combined effect of topography and compensation given for separate zones at the first 56 stations one may get from the tables an approximate value of the elevation of the topography for the zones. The values of the effects of topography and compensation, separately and combined, are expressed in the fourth decimal place in dynes. Values resulting from interpolation from surrounding stations are indicated by italic type. (For explanation of process of interpolation, see pp. 58–65 of Special Publication No. 10.) The following table gives the radii of the zones and the number of compartments in each of them:

Designation of zone	Inner radius of zone	Outer radius of zone	Compartments
	Meters	*Meters*	
A	0	2	1
B	2	68	4
C	68	230	4
D	230	590	6
E	590	1 280	8
F	1 280	2 290	10
G	2 290	3 520	12
H	3 520	5 240	16
I	5 240	8 440	20
J	8 440	12 400	16
K	12 400	18 800	20
L	18 800	28 800	24
M	28 800	58 800	14
N	58 800	99 000	16
O	99 000	166 700	28
	° ′ ″	° ′ ″	
18	1 29 58	1 41 13	1
17	1 41 13	1 54 52	1
16	1 54 52	2 11 53	1
15	2 11 53	2 33 46	1
14	2 33 46	3 03 05	1
13	3 03 05	4 19 13	16
12	4 19 13	5 46 34	10
11	5 46 34	7 51 30	8
10	7 51 30	10 44	6
9	10 44	14 09	4
8	14 09	20 41	4
7	20 41	26 41	2
6	26 41	35 58	18
5	35 58	51 04	16
4	51 04	72 13	12
3	72 13	105 48	10
2	105 48	150 56	6
1	150 56	180	1

Corrections for topography and isostatic compensation, separate zones, for United States stations.

Zone	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation
	Key West, Fla., No. 1			West Palm Beach, Fla., No. 2			Punta Gorda, Fla., No. 3			Apalachicola, Fla., No. 4			New Orleans, La., No. 5			Rayville, La., No. 6		
A	+1	0	+1	+2	0	+2	+1	0	+1	+2	0	+2	+1	0	+1	+2	0	+2
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+20	0	+20
C	−1	0	−1	0	0	0	0	0	0	0	0	0	0	0	0	+4	0	+4
D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	+6	0	+6
E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
L	0	0	0	0	+5	+5	0	0	0	0	0	0	0	0	0	0	0	0
M	0	+14	+14	0	+20	+20	0	0	0	0	0	0	0	0	0	0	0	0
N	0	+42	+42	0	+24	+24	0	0	0	0	0	0	0	0	0	0	0	0
O	0	+55	+55	0	+16	+16	0	0	0	0	+6	+6	0	0	0	0	0	0
18			+8			+4			0			+2			+2			−1
17			+4			+5			+1			+3			+2			−1
16			+3			+5			+2			+4			+5			−1
15			+5			+5			+6			+9			+7			−2
14			+8			+9			+10			+11			+11			−3
13			+38			+33			+30			+17			+24			+5
12			+38			+39			+31			+11			+22			+5
11			+42			+45			+33			+9			+7			0
10			+25			+27			+22			+14			+3			−1
9			+15			+15			+14			+12			−2			−3
8			+15			+15			+13			+10			+5			+3
7			+5			+5			+5			+6			+7			+8
6			+6			+5			+6			+8			+10			+9
5			+10			+10			+10			+10			+10			+11
4			+8			+8			+8			+7			+8			+7
3			+6			+6			+6			+6			+6			+5
2			+2			+2			+2			+3			+3			+3
1			+1			+1			+1			+1			+1			+1
Total.			+350			+306			+201			+151			+132			+77

Zone	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation
	Galveston, Tex., No. 7			Point Isabel, Tex., No. 8			Laredo, Tex., No. 9			Austin, Tex. (Capitol), No. 10			Austin, Tex. (University), No. 11			McAlester, Okla., No. 12		
A	+2	0	+2	+2	0	+2	+2	0	+2	+2	0	+2	+2	0	+2	+2	0	+2
B	0	0	0	+4	0	+4	+56	0	+56	+56	0	+56	+56	0	+56	+60	0	+60
C	0	0	0	0	0	0	+50	0	+50	+64	0	+64	+72	0	+72	+87	0	+87
D	0	0	0	0	0	0	+21	0	+21	+34	0	+34	+40	0	+40	+52	0	+52
E	0	0	0	0	0	0	+8	0	+8	+15	0	+15	+16	0	+16	+21	0	+21
F	0	0	0	0	0	0	0	0	0	+2	0	+2	+6	0	+6	+10	0	+10
G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J	0	0	0	0	0	0	0	0	0	0	−14	−14	0	−14	−14	0	−13	−13
K	0	0	0	0	0	0	0	−4	−4	0	−18	−18	0	−18	−18	0	−16	−16
L	0	0	0	0	0	0	0	−10	−10	0	−22	−22	0	−22	−22	0	−22	−22
M	0	0	0	0	0	0	0	−24	−24	0	−41	−41	0	−41	−41	0	−46	−46
N	0	0	0	0	−1	−1	0	−26	−26	0	−43	−43	0	−43	−43	0	−35	−35
O	0	0	0	0	+27	+27	0	−21	−21	0	−44	−44	0	−44	−44	0	−40	−40
18			0			+10			−5			−8			−8			−8
17			+2			+12			−6			−8			−8			−8
16			+3			+13			−7			−7			−7			−9
15			+4			+15			−10			−7			−7			−9
14			+6			+14			−8			−7			−7			−9
13			+6			+12			−21			−12			−12			−15
12			+4			−1			−10			−9			−9			−13
11			−2			−9			−12			−7			−7			−12
10			−5			−5			−4			−11			−11			−12
9			+1			+5			+4			+1			+1			−4
8			+7			+9			+10			+7			+7			+2
7			+8			+9			+9			+9			+9			+8
6			+10			+10			+10			+10			+10			+9
5			+10			+10			+10			+10			+10			+11
4			+9			+9			+9			+9			+9			+8
3			+6			+6			+6			+6			+6			+5
2			+2			+2			+2			+2			+2			+3
1			+1			+1			+1			+1			+1			+1
Total.			+74			+154			+30			−30			−11			+8

Corrections for topography and isostatic compensation, separate zones, for United States stations—Continued.

Zone	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation
	Little Rock, Ark., No. 13			Columbia, Tenn., No. 14			Atlanta, Ga., No. 15			McCormick, S. C., No. 16			Charleston, S. C., No. 17			Beaufort, N. C., No. 18		
A	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2	+2	0	+ 2	+1	0	+ 1
B	+48	0	+48	+60	0	+60	+ 64	0	+ 64	+56	0	+ 56	+4	0	+ 4	0	0	0
C	+31	0	+31	+78	0	+78	+104	0	+104	+64	0	+ 64	0	0	0	0	0	0
D	+12	0	+12	+48	0	+48	+ 90	0	+ 90	+30	0	+ 30	0	0	0	0	0	0
E	+ 5	0	+ 5	+19	0	+19	+ 40	0	+ 40	+13	0	+ 13	0	0	0	0	0	0
F	0	0	0	+ 7	0	+ 7	+ 19	0	+ 19	0	0	0	0	0	0	0	0	0
G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J	0	0	0	0	−12	−12	0	−16	− 16	0	− 2	− 2	0	0	0	0	0	0
K	0	− 1	− 1	0	−16	−16	0	−20	− 20	0	− 5	− 5	0	0	0	0	0	0
L	0	0	0	0	−17	−17	0	−24	− 24	0	− 7	− 7	0	0	0	0	0	0
M	0	−20	−20	0	−34	−34	0	−50	− 50	0	−28	− 28	0	0	0	0	0	0
N	0	−30	−30	0	−39	−39	0	−44	− 44	0	−31	− 31	0	−1	− 1	0	+ 4	+ 4
O	0	−29	−29	0	−42	−42	0	−49	− 49	0	−37	− 37	0	+2	+ 2	0	+45	+ 45
18			− 5			− 7			− 9			− 7			+ 2			+ 14
17			− 5			− 7			− 10			− 8			+ 2			+ 16
16			− 5			− 6			− 9			− 8			+ 2			+ 20
15			− 5			− 6			− 7			− 3			+ 3			+ 27
14			− 5			− 7			− 6			− 3			+ 4			+ 34
13			− 8			−10			− 7			− 1			+ 12			+ 52
12			− 7			− 5			− 1			+ 7			+ 21			+ 36
11			− 5			0			+ 6			+ 13			+ 24			+ 29
10			− 2			+ 6			+ 14			+ 17			+ 21			+ 19
9			− 5			+ 3			+ 9			+ 10			+ 12			+ 14
8			+ 2			+ 4			+ 6			+ 8			+ 12			+ 14
7			+ 8			+ 6			+ 6			+ 6			+ 5			+ 5
6			+ 9			+ 7			+ 7			+ 7			+ 6			+ 6
5			+11			+10			+ 10			+ 10			+ 9			+ 8
4			+ 7			+ 7			+ 7			+ 7			+ 7			+ 7
3			+ 5			+ 6			+ 6			+ 6			+ 6			+ 6
2			+ 3			+ 3			+ 3			+ 3			+ 3			+ 3
1			+ 1			+ 1			+ 1			+ 1			+ 1			+ 1
Total.			+12			+59			+142			+120			+159			+361
	Charlottesville, Va., No. 19			Deer Park, Md., No. 20			Washington, D. C., C. and G. S. Office, No. 21			Washington, D. C., Smithsonian Institution, No. 22			Baltimore, Md., No. 23			Philadelphia, Pa., No. 24		
A	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2	+2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2
B	+56	0	+56	+ 68	0	+ 68	+12	0	+12	+8	0	+ 8	+24	0	+24	+12	0	+12
C	+62	0	+62	+144	0	+144	+ 2	0	+ 2	0	0	0	+ 4	0	+ 4	+ 4	0	+ 4
D	+33	0	+33	+209	0	+209	0	0	0	0	0	0	+ 6	0	+ 6	0	0	0
E	+11	0	+11	+186	− 8	+178	0	0	0	0	0	0	0	0	0	0	0	0
F	+ 3	0	+ 3	+101	−10	+ 91	0	0	0	0	0	0	0	0	0	0	0	0
G	0	0	0	+ 52	−12	+ 40	0	0	0	0	0	0	0	0	0	0	0	0
H	0	0	0	+ 36	−16	+ 20	0	0	0	0	0	0	0	0	0	0	0	0
I	0	0	0	+ 20	−20	0	0	0	0	0	0	0	0	0	0	0	0	0
J	0	− 7	− 7	+ 16	−32	− 16	0	0	0	0	0	0	0	− 1	− 1	0	0	0
K	0	−11	−11	0	−36	− 36	0	0	0	0	0	0	0	− 2	− 2	0	0	0
L	0	−21	−21	0	−59	− 59	0	0	0	0	0	0	0	− 3	− 3	0	0	0
M	0	−52	−52	0	−97	− 97	0	−12	−12	0	−12	−12	0	−20	−20	0	− 6	− 6
N	0	−46	−46	0	−79	− 79	0	−17	−17	0	−17	−17	0	−16	−16	0	−10	−10
O	0	−52	−52	0	−72	− 72	0	−23	−23	0	−23	−23	0	−20	−20	0	−19	−19
18			−10			− 11			− 5			− 5			− 6			− 3
17			− 9			− 10			− 8			− 8			− 7			− 6
16			− 8			− 10			− 9			− 9			− 9			− 6
15			− 7			− 8			− 8			− 8			− 8			− 3
14			− 7			− 8			− 4			− 4			− 3			0
13			−10			− 11			+ 3			+ 3			+ 7			+12
12			+ 8			+ 2			+13			+13			+14			+19
11			+13			+ 7			+18			+18			+19			+21
10			+18			+ 13			+17			+17			+17			+16
9			+12			+ 10			+11			+11			+10			+11
8			+11			+ 10			+12			+12			+13			+14
7			+ 5			+ 5			+ 6			+ 6			+ 6			+ 6
6			+ 6			+ 6			+ 6			+ 6			+ 6			+ 6
5			+ 8			+ 8			+ 7			+ 7			+ 7			+ 6
4			+ 7			+ 7			+ 6			+ 6			+ 6			+ 6
3			+ 6			+ 6			+ 6			+ 6			+ 6			+ 6
2			+ 3			+ 3			+ 4			+ 4			+ 4			+ 4
1			+ 1			+ 1			+ 1			+ 1			+ 1			+ 1
Total.			+25			+413			+40			+34			+57			+93

Corrections for topography and isostatic compensation, separate zones, for United States stations—Continued.

Zone	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation
	Princeton, N. J., No. 25			Hoboken, N. J., No. 26			New York, N. Y., No. 27			Worcester, Mass., No. 28			Boston, Mass., No. 29			Cambridge, Mass., No. 30		
A	+ 2	0	+ 2	+2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2
B	+40	0	+ 40	+8	0	+ 8	+27	0	+ 27	+56	0	+ 56	+16	0	+ 16	+12	0	+ 12
C	+16	0	+ 16	0	0	0	+ 7	0	+ 7	+64	0	+ 64	+ 4	0	+ 4	0	0	0
D	+ 6	0	+ 6	0	0	0	+ 2	0	+ 2	+31	0	+ 31	+ 1	0	+ 1	0	0	0
E	0	0	0	0	0	0	0	0	0	+11	0	+ 11	0	0	0	0	0	0
F	0	0	0	0	0	0	0	0	0	+ 7	0	+ 7	0	0	0	0	0	0
G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J	0	0	0	0	0	0	0	0	0	0	-10	- 10	0	0	0	0	- 2	- 2
K	0	0	0	0	0	0	0	0	0	0	-13	- 13	0	0	0	0	- 3	- 3
L	0	0	0	0	0	0	0	0	0	0	-14	- 14	0	0	0	0	- 3	- 3
M	0	-11	- 11	0	-12	-12	0	-12	- 12	0	-27	- 27	0	- 4	- 4	0	- 9	- 9
N	0	-16	- 16	0	-18	-18	0	-18	- 18	0	-25	- 25	0	-12	- 12	0	-15	- 15
O	0	-22	- 22	0	-25	-25	0	-26	- 26	0	-28	- 28	0	-10	- 10	0	-14	- 14
18	......	......	- 4	......	......	- 6	......	......	- 6	......	......	- 2	......	......	- 2	......	......	- 2
17	......	......	- 6	......	......	- 5	......	......	- 5	......	......	- 3	......	......	- 1	......	......	- 1
16	......	......	- 5	......	......	- 3	......	......	- 3	......	......	- 4	......	......	- 1	......	......	- 2
15	......	......	- 1	......	......	+ 1	......	......	+ 1	......	......	- 2	......	......	- 2	......	......	- 2
14	......	......	+ 1	......	......	+ 3	......	......	+ 3	......	......	- 2	......	......	- 2	......	......	- 2
13	......	......	+ 13	......	......	+14	......	......	+ 14	......	......	+ 9	......	......	+ 11	......	......	+ 10
12	......	......	+ 20	......	......	+22	......	......	+ 22	......	......	+ 24	......	......	+ 26	......	......	+ 25
11	......	......	+ 21	......	......	+21	......	......	+ 21	......	......	+ 23	......	......	+ 25	......	......	+ 25
10	......	......	+ 16	......	......	+16	......	......	+ 18	......	......	+ 17	......	......	+ 18	......	......	+ 18
9	......	......	+ 11	......	......	+11	......	......	+ 11	......	......	+ 12	......	......	+ 12	......	......	+ 12
8	......	......	+ 14	......	......	+15	......	......	+ 15	......	......	+ 17	......	......	+ 17	......	......	+ 17
7	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6
6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6
5	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6
4	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6
3	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6
2	......	......	+ 4	......	......	+ 4	......	......	+ 4	......	......	+ 4	......	......	+ 4	......	......	+ 4
1	......	......	+ 1	......	......	+ 1	......	......	+ 1	......	......	+ 1	......	......	+ 1	......	......	+ 1
Total.	......	......	+130	......	......	+79	......	......	+106	......	......	+178	......	......	+133	......	......	+101
	Calais, Me., No. 31			Ithaca, N. Y., No. 32			Cleveland, Ohio, No. 33			Cincinnati, Ohio, No. 34			Terre Haute, Ind., No. 35			Chicago, Ill., No. 36		
A	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2
B	+25	0	+ 25	+60	0	+60	+58	0	+58	+60	0	+60	+56	0	+56	+56	0	+56
C	+ 4	0	+ 4	+88	0	+88	+78	0	+78	+84	0	+84	+60	0	+60	+72	0	+72
D	+ 4	0	+ 4	+59	0	+59	+48	0	+48	+57	0	+57	+28	0	+28	+42	0	+42
E	0	0	0	+27	0	+27	+20	0	+20	+22	0	+22	+12	0	+12	+16	0	+16
F	0	0	0	+ 6	0	+ 6	+10	0	+10	0	0	0	+ 2	0	+ 2	+ 4	0	+ 4
G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
J	0	0	0	0	-16	-16	0	-16	-16	0	-11	-11	0	- 8	- 8	0	- 7	- 7
K	0	0	0	0	-20	-20	0	-20	-20	0	-17	-17	0	-10	-10	0	- 9	- 9
L	0	0	0	0	-32	-32	0	-24	-24	0	-20	-20	0	-12	-12	0	-11	-11
M	0	- 5	- 5	0	-50	-50	0	-42	-42	0	-42	-42	0	-30	-30	0	-22	-22
N	0	- 4	- 4	0	-56	-56	0	-41	-41	0	-50	-50	0	-37	-37	0	-26	-26
O	0	-15	- 15	0	-58	-58	0	-45	-45	0	-48	-48	0	-35	-35	0	-23	-23
18	......	......	- 3	......	......	- 8	......	......	- 9	......	......	- 8	......	......	- 6	......	......	- 6
17	......	......	- 3	......	......	- 8	......	......	-10	......	......	- 8	......	......	- 6	......	......	- 6
16	......	......	- 3	......	......	- 7	......	......	-10	......	......	- 8	......	......	- 6	......	......	- 7
15	......	......	- 4	......	......	- 7	......	......	-11	......	......	- 8	......	......	- 6	......	......	- 8
14	......	......	- 3	......	......	- 7	......	......	-11	......	......	- 8	......	......	- 7	......	......	- 9
13	......	......	- 3	......	......	- 6	......	......	-18	......	......	-15	......	......	-16	......	......	-16
12	......	......	+ 9	......	......	+ 7	......	......	-10	......	......	- 8	......	......	- 9	......	......	-10
11	......	......	+ 18	......	......	+ 8	......	......	- 5	......	......	- 3	......	......	- 7	......	......	- 4
10	......	......	+ 18	......	......	+11	......	......	+ 4	......	......	+ 4	......	......	- 2	......	......	- 1
9	......	......	+ 13	......	......	+ 8	......	......	+ 5	......	......	+ 4	......	......	+ 1	......	......	+ 1
8	......	......	+ 16	......	......	+12	......	......	+ 8	......	......	+ 6	......	......	+ 4	......	......	+ 6
7	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 7	......	......	+ 7
6	......	......	+ 6	......	......	+ 6	......	......	+ 7	......	......	+ 7	......	......	+ 8	......	......	+ 8
5	......	......	+ 5	......	......	+ 7	......	......	+ 8	......	......	+ 9	......	......	+ 9	......	......	+ 9
4	......	......	+ 6	......	......	+ 6	......	......	+ 7	......	......	+ 7	......	......	+ 7	......	......	+ 7
3	......	......	+ 6	......	......	+ 6	......	......	+ 5	......	......	+ 5	......	......	+ 5	......	......	+ 5
2	......	......	+ 5	......	......	+ 4	......	......	+ 3	......	......	+ 3	......	......	+ 3	......	......	+ 3
1	......	......	+ 1	......	......	+ 1	......	......	+ 1	......	......	+ 1	......	......	+ 1	......	......	+ 1
Total.	......	......	+101	......	......	+49	......	......	- 2	......	......	+23	......	......	+ 8	......	......	+74

Corrections for topography and isostatic compensation, separate zones, for United States stations—Continued.

Zone	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation
	Madison, Wis., No. 37			St. Louis, Mo., No. 38			Kansas City, Mo., No. 39			Ellsworth, Kans., No. 40			Wallace, Kans., No. 41			Colorado Springs, Colo., No. 42		
A	+2	0	+2	+2	0	+2	+2	0	+2	+2	0	+2	+2	0	+2	+2	0	+2
B	+62	0	+62	+56	0	+56	+64	0	+64	+68	0	+68	+68	0	+68	+68	0	+68
C	+95	0	+95	+60	0	+60	+97	0	+97	+124	0	+124	+152	0	+152	+164	−4	+160
D	+70	0	+70	+30	0	+30	+72	0	+72	+140	0	+140	+252	−6	+246	+312	−6	+306
E	+30	0	+30	+13	0	+13	+30	0	+30	+82	0	+82	+256	−8	+248	+424	−16	+408
F	+10	0	+10	0	0	0	+16	0	+16	+40	0	+40	+150	−10	+140	+351	−20	+331
G	0	0	0	0	0	0	0	0	0	+12	0	+12	+84	−12	+72	+216	−24	+192
H	0	0	0	0	0	0	0	0	0	+16	−16	0	+48	−16	+32	+159	−32	+127
I	0	0	0	0	0	0	0	0	0	+20	−20	0	+60	−40	+20	+138	−60	+78
J	0	−16	−16	0	−3	−3	0	−16	−16	0	−16	−16	+24	−40	−16	+63	−74	−11
K	0	−20	−20	0	−12	−12	0	−20	−20	0	−20	−20	+10	−50	−40	+52	−123	−71
L	0	−24	−24	0	−13	−13	0	−24	−24	0	−47	−47	+12	−84	−72	+31	−178	−147
M	0	−57	−57	0	−28	−28	0	−53	−53	+2	−89	−87	+6	−217	−211	+30	−399	−369
N	0	−48	−48	0	−32	−32	0	−47	−47	0	−85	−85	0	−192	−192	+17	−359	−342
O	0	−49	−49	0	−33	−33	0	−55	−55	0	−95	−95	0	−169	−169	+13	−352	−339
18	......	......	−7	......	......	−5	......	......	−10	......	......	−19	......	......	−36	......	......	−68
17	......	......	−7	......	......	−5	......	......	−10	......	......	−19	......	......	−36	......	......	−69
16	......	......	−8	......	......	−5	......	......	−10	......	......	−19	......	......	−36	......	......	−69
15	......	......	−8	......	......	−7	......	......	−11	......	......	−19	......	......	−37	......	......	−68
14	......	......	−9	......	......	−9	......	......	−11	......	......	−20	......	......	−39	......	......	−62
13	......	......	−16	......	......	−16	......	......	−20	......	......	−44	......	......	−69	......	......	−[illegible]
12	......	......	−10	......	......	−10	......	......	−13	......	......	−26	......	......	−38	......	......	−48
11	......	......	−3	......	......	−9	......	......	−14	......	......	−19	......	......	−25	......	......	−30
10	......	......	−2	......	......	−5	......	......	−14	......	......	−15	......	......	−16	......	......	−17
9	......	......	0	......	......	−2	......	......	−8	......	......	−4	......	......	−2	......	......	0
8	......	......	+6	......	......	+2	......	......	−1	......	......	+3	......	......	+6	......	......	+9
7	......	......	+7	......	......	+7	......	......	+8	......	......	+7	......	......	+7	......	......	+7
6	......	......	+8	......	......	+8	......	......	+9	......	......	+9	......	......	+9	......	......	+9
5	......	......	+9	......	......	+10	......	......	+11	......	......	+10	......	......	+10	......	......	+9
4	......	......	+7	......	......	+7	......	......	+7	......	......	+8	......	......	+8	......	......	+8
3	......	......	+5	......	......	+5	......	......	+5	......	......	+5	......	......	+5	......	......	+5
2	......	......	+3	......	......	+3	......	......	+3	......	......	+3	......	......	+3	......	......	+3
1	......	......	+1	......	......	+1	......	......	+1	......	......	+1	......	......	+1	......	......	+1
Total.	......	......	+31	......	......	+10	......	......	−12	......	......	−40	......	......	−5	......	......	−[illegible]
	Pikes Peak, Colo., No. 43			Denver, Colo., No. 44			Gunnison, Colo., No. 45			Grand Junction, Colo., No. 46			Green River, Utah, No. 47			Pleasant Valley Junction, Utah, No. 48		
A	+2	0	+2	+2	0	+2	+2	0	+2	+2	0	+2	+2	0	+2	+2	0	+2
B	+80	−8	+72	+68	0	+68	+68	0	+68	+68	0	+68	+68	0	+68	+68	0	+68
C	+165	−8	+157	+164	−4	+160	+168	−4	+164	+164	−4	+160	+156	0	+156	+164	−4	+160
D	+325	−15	+310	+306	−6	+300	+330	−6	+324	+288	−6	+282	+276	−6	+270	+324	−6	+318
E	+545	−25	+520	+392	−8	+384	+488	−16	+472	+344	−8	+336	+310	−8	+302	+467	−16	+451
F	+639	−37	+602	+310	−20	+290	+450	−20	+430	+249	−10	+239	+209	−10	+199	+419	−20	+399
G	+552	−40	+512	+192	−24	+168	+309	−24	+285	+136	−16	+120	+109	−12	+97	+278	−24	+254
H	+498	−55	+443	+130	−32	+98	+240	−38	+202	+89	−23	+66	+72	−16	+56	+208	−34	+174
I	+503	−91	+412	+100	−40	+60	+210	−80	+130	+75	−42	+33	+67	−40	+27	+175	−74	+101
J	+298	−97	+201	+48	−48	0	+103	−81	+22	+44	−51	−7	+32	−48	−16	+84	−80	+4
K	+221	−142	+79	+40	−80	−40	+87	−143	−56	+33	−98	−65	+22	−73	−51	+91	−140	−49
L	+152	−184	−32	+22	−120	−98	+53	−221	−168	+24	−156	−132	+14	−115	−101	+61	−203	−142
M	+142	−432	−290	+21	−383	−362	+42	−568	−526	+10	−401	−391	+12	−341	−329	+49	−427	−378
N	+50	−384	−334	+13	−389	−376	+31	−493	−462	+8	−382	−374	+16	−311	−295	+17	−360	−343
O	+42	−371	−329	+18	−364	−346	+17	−426	−409	+14	−363	−349	0	−324	−324	+4	−319	−315
18	......	......	−68	......	......	−68	......	......	−76	......	......	−74	......	......	−65	......	......	−59
17	......	......	−68	......	......	−67	......	......	−74	......	......	−73	......	......	−70	......	......	−61
16	......	......	−68	......	......	−67	......	......	−68	......	......	−72	......	......	−67	......	......	−63
15	......	......	−64	......	......	−64	......	......	−64	......	......	−66	......	......	−68	......	......	−64
14	......	......	−59	......	......	−63	......	......	−62	......	......	−65	......	......	−69	......	......	−65
13	......	......	−83	......	......	−84	......	......	−97	......	......	−101	......	......	−108	......	......	−104
12	......	......	−48	......	......	−48	......	......	−52	......	......	−55	......	......	−59	......	......	−58
11	......	......	−30	......	......	−30	......	......	−33	......	......	−34	......	......	−35	......	......	−35
10	......	......	−17	......	......	−17	......	......	−18	......	......	−15	......	......	−12	......	......	−14
9	......	......	0	......	......	0	......	......	+2	......	......	+3	......	......	+4	......	......	+4
8	......	......	+9	......	......	+9	......	......	+11	......	......	+11	......	......	+11	......	......	+11
7	......	......	+7	......	......	+7	......	......	+7	......	......	+7	......	......	+8	......	......	+7
6	......	......	+9	......	......	+9	......	......	+9	......	......	+9	......	......	+9	......	......	+9
5	......	......	+9	......	......	+10	......	......	+9	......	......	+9	......	......	+9	......	......	+9
4	......	......	+8	......	......	+8	......	......	+8	......	......	+8	......	......	+8	......	......	+8
3	......	......	+5	......	......	+5	......	......	+5	......	......	+5	......	......	+5	......	......	+5
2	......	......	+3	......	......	+3	......	......	+3	......	......	+3	......	......	+3	......	......	+3
1	......	......	+1	......	......	+1	......	......	+1	......	......	+1	......	......	+1	......	......	+1
Total.	......	......	+1871	......	......	−148	......	......	−11	......	......	−511	......	......	−434	......	......	+238

Corrections for topography and isostatic compensation, separate zones, for United States stations—Continued.

Zone	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation	Topography	Compensation	Topography and compensation
	Salt Lake City, Utah, No. 49			Grand Canyon, Wyo., No. 50			Norris Geyser Basin, Wyo., No. 51			Lower Geyser Basin, Wyo., No. 52			Seattle, Wash. (University), No. 53			San Francisco, Cal., No. 54		
A	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2	+ 2	0	+ 2
B	+ 68	0	+ 68	+ 68	0	+ 68	+ 68	0	+ 68	+ 68	0	+ 68	+33	0	+ 33	+48	0	+ 48
C	+160	− 4	+156	+168	− 4	+164	+168	− 4	+164	+164	− 4	+160	+12	0	+ 12	+35	0	+ 35
D	+282	− 6	+276	+333	− 6	+327	+330	− 6	+324	+324	− 6	+318	+ 6	0	+ 6	+15	0	+ 15
E	+333	− 8	+325	+489	− 16	+473	+480	− 16	+464	+475	− 16	+459	+ 1	0	+ 1	+ 1	0	+ 1
F	+226	− 10	+216	+449	− 20	+429	+431	− 20	+411	+423	− 20	+403	0	0	0	0	0	0
G	+125	− 16	+109	+312	− 24	+288	+288	− 24	+264	+278	− 24	+254	0	0	0	0	0	0
H	+ 81	− 22	+ 59	+242	− 43	+199	+218	− 34	+184	+208	− 32	+176	0	0	0	0	0	0
I	+ 62	− 43	+ 19	+212	− 80	+132	+190	− 75	+115	+174	− 67	+107	0	0	0	0	0	0
J	+ 39	− 57	− 18	+105	− 80	+ 25	+ 97	− 80	+ 17	+ 92	− 80	+ 12	0	0	0	0	− 2	− 2
K	+ 20	− 93	− 73	+101	−140	− 39	+ 94	−140	− 46	+ 99	−140	− 41	0	0	0	0	− 1	− 1
L	+ 16	−137	−121	+ 73	−198	−125	+ 69	−193	−124	+ 62	−188	−126	0	− 1	− 1	0	− 7	− 7
M	+ 15	−351	−336	+ 53	−473	−420	+ 43	−452	−409	+ 44	−450	−406	0	−19	− 19	0	−14	− 14
N	+ 6	−322	−316	+ 16	−405	−389	+ 22	−403	−381	+ 36	−415	−379	0	−95	− 95	0	+15	+ 15
O	+ 2	−301	−299	0	−308	−308	+ 13	−316	−303	+ 31	−330	−299	0	−90	− 90	0	+99	+ 99
18	......	......	− 65	......	......	− 57	......	......	− 56	......	......	− 55	......	......	− 14	......	......	+ 24
17	......	......	− 64	......	......	− 60	......	......	− 59	......	......	− 58	......	......	− 11	......	......	+ 21
16	......	......	− 63	......	......	− 61	......	......	− 60	......	......	− 59	......	......	− 10	......	......	+ 20
15	......	......	− 65	......	......	− 60	......	......	− 59	......	......	− 58	......	......	− 10	......	......	+ 19
14	......	......	− 65	......	......	− 54	......	......	− 53	......	......	− 52	......	......	− 11	......	......	+ 17
13	......	......	−107	......	......	− 86	......	......	− 84	......	......	− 83	......	......	− 21	......	......	+ 25
12	......	......	− 62	......	......	− 51	......	......	− 51	......	......	− 49	......	......	− 18	......	......	+ 23
11	......	......	− 36	......	......	− 38	......	......	− 38	......	......	− 37	......	......	− 8	......	......	+ 21
10	......	......	− 12	......	......	− 22	......	......	− 22	......	......	− 21	......	......	0	......	......	+ 14
9	......	......	+ 5	......	......	− 1	......	......	− 1	......	......	− 1	......	......	+ 4	......	......	+ 10
8	......	......	+ 11	......	......	+ 9	......	......	+ 9	......	......	+ 9	......	......	+ 10	......	......	+ 15
7	......	......	+ 7	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 6	......	......	+ 10
6	......	......	+ 9	......	......	+ 8	......	......	+ 8	......	......	+ 8	......	......	+ 7	......	......	+ 9
5	......	......	+ 9	......	......	+ 8	......	......	+ 8	......	......	+ 8	......	......	+ 8	......	......	+ 9
4	......	......	+ 8	......	......	+ 7	......	......	+ 7	......	......	+ 7	......	......	+ 7	......	......	+ 8
3	......	......	+ 5	......	......	+ 4	......	......	+ 4	......	......	+ 4	......	......	+ 3	......	......	+ 5
2	......	......	+ 3	......	......	+ 3	......	......	+ 3	......	......	+ 3	......	......	+ 3	......	......	+ 4
1	......	......	+ 1	......	......	+ 1	......	......	+ 1	......	......	+ 1	......	......	+ 1	......	......	+ 1
Total.	......	......	−414	......	......	+382	......	......	+313	......	......	+281	......	......	−205	......	......	+446

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Mount Hamilton, Cal., No. 55				**Seattle, Wash. (high school), No. 56**				**Iron River, Mich., No. 57**				**Ely, Minn., No. 58**			
A		+2	0	+2		+2	0	+2	1500	+2	0	+2	1470	+2	0	+2
B		+68	0	+68		+44	0	+44	1500	+64	0	+64	1470	+64	0	+64
C		+156	0	+156		+18	0	+18	1500	+124	0	+124	1470	+124	0	+124
D		+246	-6	+240		+10	0	+10	1500	+138	0	+138	1470	+138	0	+138
E		+282	-8	+274		+3	0	+3	1560	+80	0	+80	1470	+80	0	+80
F		+194	-10	+184		0	0	0	1580	+40	0	+40	1470	+30	0	+30
G		+104	-12	+92		0	0	0	1580	+12	0	+12	1470	+12	0	+12
H		+69	-16	+53		0	0	0	1580	+16	-16	0	1470	+16	-16	0
I		+53	-20	+33		0	0	0	1590	+20	-20	0	1480	+20	-20	0
J		+32	-25	+7		0	0	0	1580	0	-16	-16	1560	0	-16	-16
K		+20	-28	-8		0	0	0	1530	0	-20	-20	1600	0	-20	-20
L		0	-18	-18		0	-1	-1	1580	0	-42	-42	1580	0	-33	-33
M		0	-24	-24		0	-19	-19	1470	0	-84	-84	1550	0	-85	-85
N		0	-16	-16		0	-95	-95	1200	0	-63	-63	1240	0	-69	-69
O		0	0	0		0	-89	-89	890	0	-50	-50	1180	0	-67	-67
18				+2				-14				-6				-12
17				-2				-11				-6				-12
16				0				-10				-6				-12
15				+2				-10				-7				-12
14				+8				-11				-7				-11
13				+22				-21				-18				-16
12				+19				-18				-12				-13
11				+20				-8				-9				-11
10				+15				0				-7				-10
9				+10				+4				-2				-5
8				+15				+10				+2				-1
7				+10				+6				+5				+5
6				+9				+7				+8				+9
5				+9				+8				+8				+9
4				+8				+7				+6				+6
3				+5				+3				+4				+4
2				+4				+3				+4				+4
1				+1				+1				+1				+1
Total				+1200				-181				+143				+83
	Pembina, N. Dak., No. 59				**Mitchell, S. Dak., No. 60**				**Sweetwater, Tex., No. 61**				**Kerrville, Tex., No. 62**			
A	796	+2	0	+2	1340	+2	0	+2	2140	+2	0	+2	1633	+2	0	+2
B	796	+60	0	+60	1340	+64	0	+64	2150	+68	0	+68	1650	+68	0	+68
C	796	+88	0	+88	1340	+116	0	+116	2150	+136	0	+136	1650	+128	0	+128
D	796	+60	0	+60	1330	+123	0	+123	2160	+191	0	+191	1667	+151	0	+151
E	796	+24	-0	+24	1320	+65	0	+65	2160	+156	-8	+148	1700	+92	0	+92
F	796	+10	0	+10	1320	+30	0	+30	2156	+79	-10	+69	1740	+49	-4	+45
G	796	0	0	0	1330	+12	0	+12	2130	+37	-12	+25	1750	+32	-12	+20
H	796	0	0	0	1320	+16	-16	0	2140	+32	-16	+16	1830	+32	-16	+16
I	796	0	0	0	1320	+20	-20	0	2200	+20	-20	0	1835	+20	-20	0
J	800	0	-16	-16	1330	0	-16	-16	2260	0	-16	-16	1930	0	-16	-16
K	800	0	-20	-20	1330	0	-20	-20	2280	0	-24	-24	1912	0	-20	-20
L	800	0	-24	-24	1360	0	-28	-28	2290	0	-54	-54	1900	0	-48	-48
M	960	0	-52	-52	1410	0	-78	-78	2150	0	-123	-123	1870	0	-107	-107
N	990	0	-52	-52	1540	0	-80	-80	2000	0	-100	-100	1460	0	-76	-76
O	1100	0	-62	-62	1620	0	-89	-89	2100	0	-107	-107	1210	0	-64	-64
18				-13				-18				-24				-12
17				-13				-18				-22				-12
16				-13				-18				-21				-11
15				-13				-19				-22				-13
14				-14				-19				-22				-12
13				-25				-31				-38				-23
12				-14				-21				-21				-13
11				-13				-24				-14				-11
10				-15				-16				-11				-8
9				-8				-10				+2				+2
8				-5				-5				+8				+8
7				+4				+6				+9				+9
6				+10				+9				+10				+10
5				+10				+11				+10				+10
4				+7				+7				+9				+9
3				+3				+4				+6				+6
2				+4				+3				+2				+2
1				+1				+1				+1				+1
Total				-89				-57				+93				+133

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	El Paso, Tex., No. 63				Nogales, Ariz., No. 64				Yuma, Ariz., No. 65				Compton, Cal., No. 66			
A	3760	+2	0	+2	3874	+2	0	+2	176	+2	0	+2	69	+2	0	+2
B	3760	+68	0	+68	3874	+68	0	+68	176	+36	0	+36	70	+16	0	+16
C	3770	+156	0	+156	3874	+156	0	+156	176	+12	0	+12	70	+4	0	+4
D	3770	+268	−6	+262	3874	+270	−6	+264	168	+6	0	+6	69	0	0	0
E	3800	+292	−8	+284	3900	+296	−8	+288	162	0	0	0	69	0	0	0
F	3865	+187	−10	+177	3930	+193	−10	+183	155	0	0	0	74	0	0	0
G	3880	+98	−12	+86	3910	+105	−12	+93	140	0	0	0	86	0	0	0
H	3910	+61	−16	+45	3960	+64	−16	+48	151	0	0	0	[illegible]	0	0	0
I	[illegible]	+60	−40	+20	3980	+60	−40	+20	159	0	0	0	81	0	0	0
J	4070	+32	−48	−16	3820	+32	−48	−16	207	0	0	0	[illegible]	0	0	0
K	4030	+20	−60	−40	3900	+20	−60	−40	298	0	−6	−6	134	0	0	0
L	3910	+24	−96	−72	3600	+14	−86	−72	415	0	−12	−12	200	0	−5	−5
M	4200	+16	−242	−226	2890	+9	−171	−162	430	0	−28	−28	390	0	−25	−25
N	4200	+6	−216	−210	2875	0	−150	−150	470	0	−25	−25	1010	0	−50	−50
O	4570	0	−221	−221	2020	0	−148	−148	932	0	−48	−48	1130	0	−60	−60
18	....	....	....	−46	....	....	....	−30	....	....	....	−17	....	....	....	−10
17	....	....	....	−45	....	....	....	−24	....	....	....	−17	....	....	....	−8
16	....	....	....	−44	....	....	....	−24	....	....	....	−18	....	....	....	0
15	....	....	....	−48	....	....	....	−28	....	....	....	−18	....	....	....	+6
14	....	....	....	−49	....	....	....	−28	....	....	....	−20	....	....	....	+7
13	....	....	....	−75	....	....	....	−49	....	....	....	−15	....	....	....	+18
12	....	....	....	−32	....	....	....	−27	....	....	....	−9	....	....	....	+14
11	....	....	....	−23	....	....	....	−12	....	....	....	+3	....	....	....	+9
10	....	....	....	−7	....	....	....	0	....	....	....	+3	....	....	....	+13
9	....	....	....	+3	....	....	....	+6	....	....	....	+10	....	....	....	+11
8	....	....	....	+14	....	....	....	+15	....	....	....	+16	....	....	....	+16
7	....	....	....	+5	....	....	....	+*8*	....	....	....	+10	....	....	....	+11
6	....	....	....	+*10*	....	....	....	+*9*	....	....	....	+*9*	....	....	....	+*9*
5	....	....	....	+*10*	....	....	....	+*9*	....	....	....	+*9*	....	....	....	+*9*
4	....	....	....	+*9*	....	....	....	+*8*	....	....	....	+*8*	....	....	....	+*8*
3	....	....	....	+*6*	....	....	....	+*5*	....	....	....	+*5*	....	....	....	+*5*
2	....	....	....	+*3*	....	....	....	+*4*	....	....	....	+*4*	....	....	....	+*4*
1	....	....	....	+*1*	....	....	....	+*1*	....	....	....	+*1*	....	....	....	+*1*
Total...	....	....	....	+7	....	....	....	+377	....	....	....	−99	....	....	....	+5
	Goldfield, Nev., No. 67				Yavapai, Ariz., No. 68				Grand Canyon, Ariz., No. 69				Gallup, N. Mex., No. 70			
A	5629	+2	0	+2	7150	+2	0	+2	2784	+2	0	+2	6496	+2	0	+2
B	5700	+68	0	+68	7150	+68	0	+68	2784	+68	0	+68	6496	+68	0	+68
C	5690	+164	−4	+160	6800	+126	−4	+122	2875	+148	0	+148	[illegible]	+164	−4	+160
D	5688	+301	−6	+295	[illegible]	+267	−6	+261	3100	+190	−5	+185	6496	+318	−6	+312
E	5700	+406	−12	+394	5850	+391	−12	+379	3510	+182	−8	+174	6600	+440	−16	+424
F	5840	+328	−20	+308	5210	+339	−15	+324	3800	+92	−10	+82	6660	+390	−20	+370
G	5970	+195	−24	+171	5560	+247	−20	+227	4410	+37	−16	+21	6720	+242	−24	+218
H	5970	+147	−32	+115	5320	+177	−25	+152	4820	+11	−23	−12	6720	+175	−32	+143
I	5975	+113	−52	+61	5110	+158	−49	+109	5170	+7	−48	−41	6760	+148	−60	+88
J	5990	+51	−62	−11	5510	+85	−60	+25	5500	+15	−61	−46	6850	+83	−79	+4
K	5610	+51	−91	−40	6240	+79	−105	−26	[illegible]	−6	−106	−112	6960	+75	−120	−45
L	5400	+29	−125	−96	6160	+49	−156	−107	6280	−5	−149	−154	7050	+48	−169	−121
M	[illegible]	0	−313	−313	5930	+51	−345	−294	6150	+2	−359	−357	7190	+34	−417	−383
N	5480	+16	−293	−277	5950	+17	−306	−289	5950	+7	−306	−299	6820	+16	−359	−343
O	6210	+1	−302	−301	5200	+9	−265	−256	5200	+9	−265	−256	6410	+9	−321	−312
18	....	....	....	−61	....	....	....	−56	....	....	....	−*56*	....	....	....	−63
17	....	....	....	−56	....	....	....	−53	....	....	....	−*53*	....	....	....	−63
16	....	....	....	−51	....	....	....	−48	....	....	....	−*48*	....	....	....	−65
15	....	....	....	−41	....	....	....	−48	....	....	....	−*48*	....	....	....	−69
14	....	....	....	−40	....	....	....	−50	....	....	....	−*50*	....	....	....	−63
13	....	....	....	−61	....	....	....	−81	....	....	....	−*81*	....	....	....	−91
12	....	....	....	−20	....	....	....	−56	....	....	....	−*56*	....	....	....	−47
11	....	....	....	−4	....	....	....	−25	....	....	....	−*25*	....	....	....	−32
10	....	....	....	+5	....	....	....	−4	....	....	....	−*4*	....	....	....	−*9*
9	....	....	....	+8	....	....	....	+6	....	....	....	+*6*	....	....	....	+*4*
8	....	....	....	+12	....	....	....	+12	....	....	....	+*12*	....	....	....	+*12*
7	....	....	....	+*9*	....	....	....	+8	....	....	....	+*8*	....	....	....	+*7*
6	....	....	....	+*9*	....	....	....	+*9*	....	....	....	+*9*	....	....	....	+*9*
5	....	....	....	+*9*	....	....	....	+*9*	....	....	....	+*9*	....	....	....	+*9*
4	....	....	....	+*8*	....	....	....	+*8*	....	....	....	+*8*	....	....	....	+*8*
3	....	....	....	+*5*	....	....	....	+*5*	....	....	....	+*5*	....	....	....	+*5*
2	....	....	....	+*4*	....	....	....	+*3*	....	....	....	+*3*	....	....	....	+*3*
1	....	....	....	+*1*	....	....	....	+*1*	....	....	....	+*1*	....	....	....	+*1*
Total...	....	....	....	+272	....	....	....	+337	....	....	....	−957	....	....	....	+141

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Las Vegas, [illegible] Mex., No. 71				Shamrock, Tex., No. 72				Denison, Tex., No. 73				Minneapolis, Minn., No. 74			
A	6429	+2	0	+2	2300	+2	0	+2	754	+2	0	+2	840	+2	0	+2
B	6429	+68	0	+68	2300	+68	0	+68	754	+60	0	+60	840	+60	0	+60
C	6429	+164	−4	+160	[illegible]	+140	0	+140	740	+84	0	+84	840	+92	0	+92
D	6429	+318	−6	+312	2300	+198	0	+198	740	+54	0	+54	830	+64	0	+64
E	6400	+440	−16	+424	2300	+168	−8	+160	730	+24	0	+24	820	+24	0	+24
F	6460	+381	−20	+361	2300	+90	−10	+80	690	+10	0	+10	840	+10	0	+10
G	6530	+241	−24	+217	2300	+48	−12	+36	660	0	0	0	880	0	0	0
H	6560	+169	−32	+137	[illegible]	+32	−16	+16	690	0	0	0	890	0	0	0
I	[illegible]	+148	−60	+88	2350	+20	−20	0	650	0	0	0	880	0	0	0
J	[illegible]	+85	−79	+6	2390	+4	−20	−16	690	0	−16	−16	880	0	−16	−16
K	6850	+78	−120	−42	2425	+13	−40	−27	670	0	−20	−20	900	0	−20	−20
L	7100	+43	−171	−128	2420	+4	−56	−52	700	0	−24	−24	920	0	−24	−24
M	7100	+35	−412	−377	2300	0	−128	−128	[illegible]	0	−37	−37	990	0	−56	−56
N	6650	+21	−350	−329	2260	0	−115	−115	710	0	−42	−42	1000	0	−48	−48
O	[illegible]	+12	−309	−297	2410	0	−122	−122	760	0	−45	−45	1040	0	−56	−56
18				−62				−24				−9				−12
17				−62				−24				−9				−12
16				−62				−24				−9				−12
15				−59				−24				−9				−13
14				−61				−25				−9				−13
13				−89				−44				−20				−21
12				−43				−25				−13				−15
11				−26				−17				−11				−13
10				−18				−14				−12				−9
9				−1				−1				−3				−5
8				+9				+6				+3				0
7				+7				+8				+8				+6
6				+9				+10				+9				+9
5				+10				+10				+11				+10
4				+8				+9				+8				+6
3				+5				+6				+5				+4
2				+3				+2				+3				+4
1				+1				+1				+1				+1
Total				+171				+70				−6				−52

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Lead, S. Dak., No. 75				Bismarck, N. Dak., No. 76				Hinsdale, Mont., No. 77				Sand Point, Idaho, No. 78			
A	5216	+2	0	+2	1690	+2	0	+2	2170	+2	0	+2	[illegible]	+2	0	+2
B	5200	+64	0	+64	1690	+68	0	+68	2170	+68	0	+68	2090	+68	0	+68
C	5200	+164	−4	+160	1690	+128	0	+128	2160	+140	0	+140	2100	+136	0	+136
D	5200	+300	−6	+294	1700	+156	0	+156	2160	+190	0	+190	2100	+186	0	+186
E	5290	+386	−8	+378	1700	+98	0	+98	2170	+155	−8	+147	[illegible]	+148	−8	+140
F	5300	+296	−20	+276	1720	+49	−5	+44	2210	+80	−10	+70	[illegible]	+73	−10	+63
G	5420	+182	−24	+158	1730	+24	−6	+18	2270	+38	−12	+26	[illegible]	+36	−12	+24
H	5550	+131	−32	+99	1710	+22	−16	+6	2330	+17	−16	+1	2230	+26	−16	+10
I	5600	+83	−40	+43	1730	+20	−20	0	2350	+20	−20	0	2510	+15	−20	−5
J	5260	+45	−48	−3	1780	0	−16	−16	2360	0	−16	−16	2720	+16	−32	−16
K	5040	+45	−80	−35	1820	0	−20	−20	[illegible]	0	−25	−25	2900	0	−43	−43
L	4840	+32	−120	−88	1880	0	−48	−48	2390	0	−54	−54	3100	+1	−72	−71
M	4400	+27	−260	−233	2000	0	−112	−112	2650	0	−149	−149	3890	+11	−238	−227
N	3890	0	−199	−199	2010	0	−96	−96	2790	0	−145	−145	3970	0	−204	−204
O	3610	0	−174	−174	2020	0	−105	−105	2890	0	−135	−135	4110	0	−205	−205
18				−36				−20				−31				−42
17				−37				−20				−31				−42
16				−37				−19				−31				−40
15				−39				−20				−32				−40
14				−40				−20				−33				−40
13				−61				−38				−66				−70
12				−35				−26				−40				−39
11				−30				−23				−30				−21
10				−19				−17				−21				−11
9				−6				−10				−13				0
8				+1				−3				+2				+7
7				+6				+5				+5				+6
6				+9				+9				+10				+8
5				+10				+10				+9				+8
4				+7				+7				+7				+7
3				+4				+4				+3				+3
2				+3				+3				+4				+3
1				+1				+1				+1				+1
Total				+443				−54				−167				−444

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Boise, Idaho, No. 79				Astoria, Oreg., No. 80				Sisson, Cal., No. 81				Rock Springs, Wyo., No. 82			
A	2690	+ 2	0	+ 2	5	+1	0	+ 1	3440	+ 2	0	+ 2	6260	+ 2	0	+ 2
B	2690	+ 68	0	+ 68	5	0	0	0	3440	+ 68	0	+ 68	6260	+ 68	0	+ 68
C	2690	+148	0	+148	15	0	0	0	3420	+151	0	+151	6250	+164	− 4	+160
D	2700	+222	0	+222	[illegible]	−5	0	− 5	3400	+259	− 6	+253	6270	+315	− 6	+309
E	2720	+201	− 8	+193	120	−1	0	− 1	3390	+264	− 8	+256	6290	+433	− 16	+417
F	2760	+111	− 10	+101	50	0	0	0	3640	+169	− 10	+159	[illegible]	+370	− 20	+350
G	2830	+ 60	− 12	+ 48	20	0	0	0	3790	+ 84	− 12	+ 72	6420	+234	− 24	+210
H	2990	+ 41	− 16	+ 25	20	0	0	0	3890	+ 48	− 16	+ 32	6510	+161	− 32	+129
I	3120	+ 18	− 20	− 2	20	0	0	0	4550	+ 35	− 40	− 5	[illegible]	+146	− 60	+ 86
J	3440	+ 18	− 32	− 14	80	0	0	0	5450	+ 16	− 48	− 32	6540	+ 80	− 80	+ 9
K	3560	+ 5	− 60	− 55	90	0	0	0	[illegible]	+ 2	− 80	− 78	6610	+ 80	−120	− 40
L	3560	− 4	− 81	− 85	190	0	− 4	− 4	4610	+ 8	−111	−103	6880	+ 43	−163	−120
M	[illegible]	+ 8	−231	−223	410	0	−23	−23	4250	+ 11	−252	−241	7020	+ 56	−406	−350
N	4410	+ 7	−234	−227	− 40	0	+ 4	+ 4	4010	0	−205	−205	7180	+ 15	−378	−363
O	4700	+ 8	−241	−233	−552	0	+29	+29	3510	0	−174	−174	7730	+ 6	−377	−371
18	....	....	....	− 53	....	....	....	+ 3	....	....	....	− 29	....	....	....	− 73
17	....	....	....	− 56	....	....	....	0	....	....	....	− 25	....	....	....	− 71
16	....	....	....	− 56	....	....	....	+ 3	....	....	....	− 21	....	....	....	− 71
15	....	....	....	− 54	....	....	....	+ 5	....	....	....	− 17	....	....	....	− 73
14	....	....	....	− 52	....	....	....	+ 3	....	....	....	− 7	....	....	....	− 67
13	....	....	....	− 80	....	....	....	0	....	....	....	− 2	....	....	....	− 99
12	....	....	....	− 57	....	....	....	− 1	....	....	....	+ 8	....	....	....	− 55
11	....	....	....	− 24	....	....	....	+ *3*	....	....	....	+ 12	....	....	....	− 38
10	....	....	....	− 8	....	....	....	+ *6*	....	....	....	+ 9	....	....	....	− *16*
9	....	....	....	+ 2	....	....	....	+ *6*	....	....	....	+ 8	....	....	....	+ *2*
8	....	....	....	+ 9	....	....	....	+*11*	....	....	....	+ *13*	....	....	....	+ *10*
7	....	....	....	+ *7*	....	....	....	+ *7*	....	....	....	+ *9*	....	....	....	+ *7*
6	....	....	....	+ *8*	....	....	....	+ *7*	....	....	....	+ *8*	....	....	....	+ *9*
5	....	....	....	+ *8*	....	....	....	+ *8*	....	....	....	+ *9*	....	....	....	+ *9*
4	....	....	....	+ *7*	....	....	....	+ *7*	....	....	....	+ *8*	....	....	....	+ *8*
3	....	....	....	+ *4*	....	....	....	+ *3*	....	....	....	+ *4*	....	....	....	+ *5*
2	....	....	....	+ *3*	....	....	....	+ *3*	....	....	....	+ *4*	....	....	....	+ *3*
1	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*
Total..	....	....	....	−423	....	....	....	+76	....	....	....	+147	....	....	....	− 13
	Paxton, Nebr., No. 83				Washington, D. C. (Bureau of Standards), No. 84				North Hero, Vt., No. 85				Lake Placid, N. Y., No. 86			
A	3060	+ 2	0	+ 2	....	+ 2	0	+ 2	115	+ 2	0	+ 2	1870	+ 2	0	+ 2
B	3060	+ 68	0	+ 68	....	+48	0	+ 48	115	+24	0	+24	1870	+ 68	0	+ 68
C	3060	+152	0	+152	....	+32	0	+ 32	115	+ 4	0	+ 4	1880	+136	0	+136
D	3070	+243	− 3	+240	....	+16	0	+ 16	120	+ 6	0	+ 6	1890	+170	0	+170
E	3080	+236	− 8	+228	....	+ 8	0	+ 8	110	0	0	0	1860	+119	− 3	+116
F	3110	+140	− 10	+130	....	0	0	0	110	0	0	0	1920	+ 59	− 7	+ 52
G	3120	+ 72	− 12	+ 60	....	0	0	0	100	0	0	0	1930	+ 37	−12	+ 25
H	3110	+ 48	− 16	+ 32	....	0	0	0	100	0	0	0	2020	+ 22	− 7	+ 15
I	3120	+ 20	− 20	0	....	0	0	0	110	0	0	0	2320	+ 11	−20	− 9
J	3170	+ 16	− 32	− 16	....	0	− 1	− *1*	110	0	0	0	2406	+ 8	−24	− 16
K	3210	0	− 40	− 40	....	0	− 1	− *1*	150	0	0	0	2260	+ 6	−40	− 34
L	3270	0	− 72	− 72	....	0	− 2	− *2*	200	0	− 3	− 3	2050	0	−50	− 50
M	3250	+ 13	−196	−183	....	0	−15	− *15*	660	0	−32	−32	[illegible]	0	−75	− 75
N	3270	0	−170	−170	....	0	−19	− *19*	680	0	−44	−44	980	0	−52	− 52
O	3280	0	−155	−155	....	0	−25	− *25*	680	0	−48	−48	700	0	−41	− 41
18	....	....	....	− 33	....	....	....	− *5*	....	....	....	−10	....	....	....	− 10
17	....	....	....	− 34	....	....	....	− *8*	....	....	....	−10	....	....	....	− 9
16	....	....	....	− 33	....	....	....	− *9*	....	....	....	−11	....	....	....	− 9
15	....	....	....	− 33	....	....	....	− *8*	....	....	....	− 7	....	....	....	− 8
14	....	....	....	− 33	....	....	....	− *4*	....	....	....	− 7	....	....	....	− 7
13	....	....	....	− *59*	....	....	....	+ *2*	....	....	....	−*16*	....	....	....	− *13*
12	....	....	....	− *33*	....	....	....	+ *13*	....	....	....	− *6*	....	....	....	− *3*
11	....	....	....	− *26*	....	....	....	+ *18*	....	....	....	+ *3*	....	....	....	+ *4*
10	....	....	....	− *17*	....	....	....	+ *17*	....	....	....	+*11*	....	....	....	+ *11*
9	....	....	....	− *4*	....	....	....	+ *11*	....	....	....	+*10*	....	....	....	+ *9*
8	....	....	....	+ *3*	....	....	....	+ *12*	....	....	....	+*11*	....	....	....	+ *11*
7	....	....	....	+ *7*	....	....	....	+ *6*	....	....	....	+ *6*	....	....	....	+ *6*
6	....	....	....	+ *9*	....	....	....	+ *6*	....	....	....	+ *6*	....	....	....	+ *6*
5	....	....	....	+ *10*	....	....	....	+ *7*	....	....	....	+ *7*	....	....	....	+ *7*
4	....	....	....	+ *8*	....	....	....	+ *6*	....	....	....	+ *6*	....	....	....	+ *6*
3	....	....	....	+ *5*	....	....	....	+ *6*	....	....	....	+ *6*	....	....	....	+ *6*
2	....	....	....	+ *3*	....	....	....	+ *4*	....	....	....	+ *5*	....	....	....	+ *5*
1	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*
Total..	....	....	....	+ 17	....	....	....	+118	....	....	....	−86	....	....	....	+320

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Potsdam, N. Y., No. 87				Wilson, N. Y., No. 88				Alpena, Mich., No. 89				Virginia Beach, Va., No. 90			
A	430	+2	0	+2	280	+2	0	+2	585	+2	0	+2	12	+2	0	+2
B	430	+56	0	+56	280	+48	0	+48	580	+56	0	+56	12	0	0	0
C	430	+52	0	+52	280	+28	0	+28	580	+68	0	+68	3	0	0	0
D	440	+22	0	+22	280	+12	0	+12	580	+42	0	+42	2	0	0	0
E	430	+8	0	+8	280	+8	0	+8	580	+16	0	+16	4	0	0	0
F	430	0	0	0	270	0	0	0	580	0	0	0	2	0	0	0
G	470	0	0	0	280	0	0	0	580	0	0	0	2	0	0	0
H	475	0	0	0	270	0	0	0	580	0	0	0	0	0	0	0
I	527	0	0	0	290	0	0	0	590	0	0	0	−3	0	0	0
J	600	0	−13	−13	270	0	0	0	590	0	−16	−16	−10	0	0	0
K	577	0	−17	−17	300	0	0	0	590	0	−20	−20	−11	0	0	0
L	[illegible]	0	−18	−18	350	0	−8	−8	590	0	−24	−24	−20	0	0	0
M	746	0	−40	−40	350	0	−20	−20	640	0	−35	−35	−15	0	0	0
N	810	0	−47	−47	580	0	−33	−33	660	0	−36	−36	−24	0	0	0
O	680	0	−42	−42	850	0	−46	−46	660	0	−34	−34	−98	0	+5	+5
18	....	....	....	−8	....	....	....	−9	....	....	....	−7	....	....	....	+7
17	....	....	....	−8	....	....	....	−10	....	....	....	−7	....	....	....	+11
16	....	....	....	−9	....	....	....	−9	....	....	....	−7	....	....	....	+12
15	....	....	....	−8	....	....	....	−10	....	....	....	−7	....	....	....	+16
14	....	....	....	−9	....	....	....	−10	....	....	....	−8	....	....	....	+21
13	....	....	....	−16	....	....	....	−13	....	....	....	−15	....	....	....	+38
12	....	....	....	−5	....	....	....	−3	....	....	....	−10	....	....	....	+30
11	....	....	....	+1	....	....	....	−1	....	....	....	−5	....	....	....	+27
10	....	....	....	+8	....	....	....	+5	....	....	....	−1	....	....	....	+18
9	....	....	....	+7	....	....	....	+5	....	....	....	+1	....	....	....	+13
8	....	....	....	+11	....	....	....	+10	....	....	....	+6	....	....	....	+14
7	....	....	....	+7	....	....	....	+7	....	....	....	+6	....	....	....	+5
6	....	....	....	+6	....	....	....	+6	....	....	....	+7	....	....	....	+6
5	....	....	....	+6	....	....	....	+6	....	....	....	+7	....	....	....	+7
4	....	....	....	+5	....	....	....	+5	....	....	....	+5	....	....	....	+7
3	....	....	....	+6	....	....	....	+6	....	....	....	+5	....	....	....	+6
2	....	....	....	+5	....	....	....	+5	....	....	....	+5	....	....	....	+3
1	....	....	....	+1	....	....	....	+1	....	....	....	+1	....	....	....	+1
Total..	....	....	....	−37	....	....	....	−18	....	....	....	−5	....	....	....	+249
	Durham, N. C., No. 91				Fernandina, Fla., No. 92				Wilmer, Ala., No. 93				Aliceville, Ala., No. 94			
A	413	+2	0	+2	10	+2	0	+2	226	+2	0	+2	242	+2	0	+2
B	413	+56	0	+56	10	0	0	0	226	+42	0	+42	242	+44	0	+44
C	413	+43	0	+48	10	0	0	0	226	+20	0	+20	244	+24	0	+24
D	413	+18	0	+18	7	0	0	0	226	+12	0	+12	246	+12	0	+12
E	413	+8	0	+8	2	0	0	0	226	+8	0	+8	247	+8	0	+8
F	413	0	0	0	7	0	0	0	226	0	0	0	245	0	0	0
G	416	0	0	0	5	0	0	0	213	0	0	0	245	0	0	0
H	415	0	0	0	−3	0	0	0	213	0	0	0	248	0	0	0
I	428	0	0	0	−2	0	0	0	217	0	0	0	248	0	0	0
J	426	0	0	0	0	0	0	0	219	0	0	0	247	0	0	0
K	430	0	−5	−5	−3	0	0	0	217	0	0	0	249	0	0	0
L	437	0	−5	−5	−15	0	0	0	172	0	0	0	251	0	0	0
M	444	0	−26	−26	−10	0	0	0	131	0	−7	−7	255	0	−14	−14
N	401	0	−24	−24	−2	0	0	0	94	0	−5	−5	269	0	−17	−17
O	447	0	−20	−20	−38	0	0	0	71	0	0	0	323	0	−18	−18
18	....	....	....	−5	....	....	....	+2	....	....	....	0	....	....	....	−4
17	....	....	....	−7	....	....	....	+3	....	....	....	+1	....	....	....	−4
16	....	....	....	−7	....	....	....	+4	....	....	....	+2	....	....	....	−4
15	....	....	....	−1	....	....	....	+5	....	....	....	+5	....	....	....	−4
14	....	....	....	−1	....	....	....	+7	....	....	....	+7	....	....	....	−4
13	....	....	....	+2	....	....	....	+18	....	....	....	+15	....	....	....	−1
12	....	....	....	+15	....	....	....	+22	....	....	....	+14	....	....	....	+2
11	....	....	....	+18	....	....	....	+24	....	....	....	+7	....	....	....	+3
10	....	....	....	+19	....	....	....	+20	....	....	....	+6	....	....	....	+6
9	....	....	....	+12	....	....	....	+13	....	....	....	+2	....	....	....	+3
8	....	....	....	+11	....	....	....	+12	....	....	....	+6	....	....	....	+4
7	....	....	....	+5	....	....	....	+5	....	....	....	+7	....	....	....	+7
6	....	....	....	+6	....	....	....	+7	....	....	....	+9	....	....	....	+8
5	....	....	....	+8	....	....	....	+9	....	....	....	+10	....	....	....	+11
4	....	....	....	+7	....	....	....	+7	....	....	....	+8	....	....	....	+7
3	....	....	....	+6	....	....	....	+6	....	....	....	+6	....	....	....	+5
2	....	....	....	+3	....	....	....	+3	....	....	....	+3	....	....	....	+3
1	....	....	....	+1	....	....	....	+1	....	....	....	+1	....	....	....	+1
Total..	....	....	....	+144	....	....	....	+170	....	....	....	+181	....	....	....	+80

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	New Madrid, Mo., No. 95				Mena, Ark., No. 96				Nacogdoches, Tex., No. 97				Alpine, Tex., No. 98			
A	258	+2	0	+2	1209	+2	0	+2	313	+2	0	+2	4460	+2	0	+2
B	258	+44	0	+44	1209	+64	0	+64	300	+48	0	+48	4460	+68	0	+68
C	258	+24	0	+24	1209	+112	0	+112	300	+32	0	+32	4460	+164	-4	+160
D	258	+12	0	+12	1209	+108	0	+108	300	+12	0	+12	4470	+288	-6	+282
E	258	+8	0	+8	1119	+56	0	+56	300	+8	0	+8	4500	+344	-8	+336
F	260	0	0	0	1120	+22	0	+22	300	0	0	0	4550	+240	-10	+230
G	260	0	0	0	1175	+3	0	+3	300	0	0	0	4520	+129	-12	+117
H	259	0	0	0	1247	+4	-4	0	300	0	0	0	4540	+80	-16	+64
I	288	0	0	0	1205	+5	-5	0	300	0	0	0	4730	+67	-40	+27
J	288	0	0	0	1222	0	-16	-16	291	0	0	0	4960	+34	-48	-14
K	290	0	0	0	1192	0	-20	-20	281	0	0	0	4910	+37	-80	-43
L	290	0	0	0	1169	0	-27	-27	267	0	0	0	4800	+23	-115	-92
M	305	0	-14	-14	902	0	-51	-51	286	0	-14	-14	4660	+22	-275	-253
N	388	0	-27	-27	688	0	-37	-37	306	0	-19	-19	4100	+4	-214	-210
O	506	0	-30	-30	700	0	-37	-37	259	0	-13	-13	3200	0	-153	-153
18				-6				-7				-3				-28
17				-6				-7				-3				-30
16				-6				-7				-3				-[illegible]
15				-6				-7				-2				-32
14				-7				-7				-1				-32
13				-12				-13				-3				-55
12				-8				-10				-2				-24
11				-5				-9				-4				-19
10				0				-7				-7				-6
9				-1				-4				-1				+3
8				+3				+2				+5				+13
7				+7				+8				+8				+6
6				+8				+9				+10				+10
5				+10				+11				+10				+10
4				+7				+8				+8				+9
3				+6				+5				+6				+6
2				+3				+3				+2				+3
1				+1				+1				+1				+1
Total				+7				+148				+77				+326

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Farwell, Tex., No. 99				Guymon, Okla., No. 100				Helenwood, Tenn., No. 101				Cloudland, Tenn., No. 102			
A	4130	+2	0	+2	3000	+2	0	+2	1386	+2	0	+2	6200	+2	0	+2
B	4130	+68	0	+68	3100	+68	0	+68	1386	+64	0	+64	6200	+68	0	+68
C	4130	+158	-2	+156	3100	+152	0	+152	1400	+120	0	+120	6100	+164	-4	+160
D	4130	+282	-6	+276	3100	+243	-3	+240	1400	+132	0	+132	5800	+296	-6	+290
E	4125	+314	-8	+306	3050	+236	-8	+228	1419	+75	0	+75	5450	+408	-11	+397
F	4125	+213	-10	+203	3050	+135	-10	+125	1470	+36	0	+36	5040	+336	-15	+321
G	4125	+114	-12	+102	3050	+72	-12	+60	1520	+12	0	+12	4480	+196	-15	+181
H	4125	+64	-16	+48	3050	+48	-16	+32	1440	+16	-16	0	3980	+127	-18	+109
I	4125	+60	-40	+20	3050	+20	-20	0	1450	+20	-20	0	3680	+114	-35	+79
J	4144	+32	-48	-16	3050	+16	-32	-16	1430	0	-16	-16	3470	+55	-41	+14
K	4150	+20	-60	-40	3180	0	-40	-40	1570	0	-20	-20	3150	+44	-43	+1
L	4150	+24	-96	-72	3430	0	-72	-72	1610	0	-45	-45	2830	+21	-65	-44
M	4170	+15	-249	-234	3490	+14	-210	-196	1430	0	-80	-80	2340	+18	-135	-117
N	4190	+3	-220	-217	3390	0	-176	-176	1170	0	-59	-59	2000	+7	-100	-93
O	3920	0	-194	-194	3480	0	-167	-167	1280	0	-68	-68	1680	0	-91	-91
18				-41				-34				-13				-14
17				-42				-34				-14				-12
16				-43				-34				-12				-10
15				-43				-34				-8				-10
14				-44				-36				-6				-5
13				-67				-60				-9				-7
12				-34				-32				-2				+3
11				-21				-21				+4				+9
10				-15				-15				+9				+14
9				0				-1				+6				+9
8				+9				+7				+6				+8
7				+8				+8				+6				+6
6				+9				+10				+7				+7
5				+10				+10				+10				+10
4				+8				+9				+7				+7
3				+5				+6				+6				+6
2				+3				+2				+3				+3
1				+1				+1				+1				+1
Total				+111				-8				+154				+1302

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Hughes, Tenn., No. 103				Charleston, W. Va., No. 104				State College, Pa., No. 105				Fort Kent, Me., No. 106			
A	3260	+2	0	+2	602	+2	0	+2	1174	+2	0	+2	524	+2	0	+2
B	3260	+68	0	+68	602	+56	0	+56	1174	+64	0	+64	525	+56	0	+56
C	[illegible]	+152	0	+152	602	+72	0	+72	1180	+112	0	+112	525	+60	0	+60
D	3350	+255	-6	+249	625	+39	0	+39	1165	+103	0	+103	525	+30	0	+30
E	3450	+250	-8	+242	630	+14	0	+14	1160	+55	0	+55	525	+16	0	+16
F	3720	+154	-10	+144	785	+8	0	+8	[illegible]	+20	0	+20	525	0	0	0
G	4000	+73	-12	+61	855	0	0	0	1135	0	0	0	525	0	0	0
H	4060	+42	-21	+21	880	0	0	0	1165	0	0	0	525	0	0	0
I	3840	+31	-33	-2	920	0	0	0	1298	+10	-10	0	525	0	0	0
J	3490	+24	-40	-16	985	0	-16	-16	[illegible]	0	-16	-16	525	0	-8	-8
K	3250	+6	-45	-39	980	0	-20	-20	1340	0	-20	-20	525	0	-10	-10
L	3000	+10	-72	-62	980	0	-24	-24	1475	0	-40	-40	530	0	-12	-12
M	2340	+6	-138	-132	1140	0	-62	-62	1310	0	-75	-75	750	0	-35	-35
N	2000	0	-98	-98	1220	0	-64	-64	1230	0	-64	-64	830	0	-47	-47
O	[illegible]	0	-87	-87	1670	0	-86	-86	1290	0	-73	-73	670	0	-44	-44
18				-14				-18				-12				-8
17				-12				-18				-11				-8
16				-12				-14				-10				-8
15				-10				-12				-8				-6
14				-5				-10				-6				-7
13				-7				-11				-3				-23
12				+3				-1				+6				-15
11				+9				+5				+9				+2
10				+14				+10				+12				+13
9				+9				+8				+8				+12
8				+8				+8				+11				+12
7				+6				+5				+6				+6
6				+7				+6				+6				+6
5				+10				+8				+7				+6
4				+7				+7				+6				+6
3				+6				+6				+6				+6
2				+3				+3				+4				+6
1				+1				+1				+1				+1
Total				+526				-98				+100				+9
	Prentice, Wis., No. 107				Fergus Falls, Minn., No. 108				Sheridan, Wyo., No. 109				Boulder, Mont., No. 110			
A	[illegible]	+2	0	+2	1200	+2	0	+2	3773	+2	0	+2	[illegible]	+2	0	+2
B	[illegible]	+68	0	+68	1200	+64	0	+64	3773	+68	0	+68	4900	+68	0	+68
C	1539	+124	0	+124	1200	+112	0	+112	3760	+158	-2	+156	[illegible]	+164	-4	+160
D	1500	+138	0	+138	1200	+108	0	+108	3768	+270	-6	+264	4900	+300	-6	+294
E	1500	+80	0	+80	1200	+56	0	+56	3812	+291	-8	+283	4900	+364	-8	+356
F	1500	+30	0	+30	1200	+20	0	+20	3840	+182	-10	+172	5000	+268	-18	+250
G	1500	+12	0	+12	1200	0	0	0	3883	+96	-12	+84	5117	+106	-23	+143
H	1500	+16	-16	0	[illegible]	+6	-6	0	3881	+64	-16	+48	5294	+115	-32	+83
I	1500	+20	-20	0	1200	+8	-8	0	3885	+60	-40	+20	5600	+78	-40	+38
J	1500	0	-16	-16	1200	0	-16	-16	4025	+30	-46	-16	[illegible]	+49	-68	-19
K	1500	0	-20	-20	[illegible]	0	-20	-20	4150	+18	-63	-45	6415	+42	-108	-66
L	1483	0	-44	-44	1105	0	-24	-24	5215	+12	-121	-109	6346	+33	-153	-120
M	[illegible]	0	-82	-82	1128	0	-63	-63	6093	+1	-358	-357	5314	+23	-310	-287
N	1359	0	-71	-71	1156	0	-58	-58	5375	+9	-284	-275	5950	+17	-317	-300
O	1089	0	-61	-61	1262	0	-69	-69	4736	+2	-229	-227	5965	0	-287	-287
18				-9				-12				-46				-54
17				-9				-12				-49				-53
16				-9				-12				-51				-50
15				-9				-12				-51				-51
14				-9				-16				-46				-48
13				-19				-25				-73				-78
12				-13				-16				-43				-46
11				-10				-15				-34				-32
10				-8				-13				-20				-18
9				-3				-7				-5				-2
8				+1				-3				+5				+7
7				+5				+5				+6				+6
6				+8				+9				+9				+8
5				+9				+10				+9				+8
4				+6				+6				+7				+7
3				+4				+4				+4				+4
2				+4				+4				+3				+3
1				+1				+1				+1				+1
Total				+100				+9				-306				-73

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Skyomish, Wash., No. 111				Olympia, Wash., No. 112				Heppner, Oreg., No. 113				Truckee, Cal., No. 114			
A	920	+ 2	0	+ 2	62	+ 2	0	+ 2	1960	+ 2	0	+ 2	5922	+ 2	0	+ 2
B	920	+64	0	+ 64	60	+16	0	+ 16	1960	+ 68	0	+ 68	[illegible]	+ 68	0	+ 68
C	920	+96	0	+ 96	60	+ 4	0	+ 4	1960	+136	0	+136	5925	+163	− 4	+159
D	933	+72	0	+ 72	60	0	0	0	1960	+180	0	+180	[illegible]	+308	− 6	+302
E	1144	+28	0	+ 28	60	0	0	0	1960	+134	− 6	+128	6019	+420	− 16	+404
F	1740	+ 3	− 5	− 2	60	0	0	0	1960	+ 69	− 9	+ 60	6070	+344	− 20	+324
G	1925	− 5	− 6	− 11	60	0	0	0	1960	+ 35	− 11	+ 24	6142	+211	− 24	+187
H	2275	− 1	− 13	− 14	60	0	0	0	1960	+ 32	− 16	+ 16	6150	+151	− 32	+119
I	2885	−19	− 27	− 46	60	0	0	0	1960	+ 20	− 20	0	6335	+123	− 51	+ 72
J	3575	− 6	− 40	− 46	60	0	0	0	1960	0	− 16	− 16	[illegible]	+ 64	− 75	− 11
K	3625	−22	− 52	− 74	75	0	0	0	1960	0	− 20	− 20	7005	+ 62	−120	− 58
L	3283	− 9	− 79	− 88	88	0	0	0	1475	0	− 36	− 36	6912	+ 38	−163	−125
M	2678	− 4	−158	−162	309	0	−17	− 17	[illegible]	0	−133	−133	5857	+ 33	−342	−309
N	2081	+ 2	−109	−107	1206	0	−62	− 62	2644	0	−133	−133	4875	+ 8	−254	−246
O	1775	− 1	− 90	− 91	1174	0	−58	− 58	[illegible]	0	−151	−151	3661	+ 1	−183	−182
18	....	....	....	− 17	....	....	....	− 6	....	....	....	− 35	....	....	....	− 38
17	....	....	....	− 16	....	....	....	− 6	....	....	....	− 33	....	....	....	− 37
16	....	....	....	− 16	....	....	....	− 5	....	....	....	− 31	....	....	....	− 40
15	....	....	....	− 15	....	....	....	− 4	....	....	....	− 27	....	....	....	− 43
14	....	....	....	− 16	....	....	....	− 6	....	....	....	− 32	....	....	....	− 37
13	....	....	....	− 29	....	....	....	− 13	....	....	....	− 49	....	....	....	− 23
12	....	....	....	− 21	....	....	....	− 11	....	....	....	− 23	....	....	....	+ 2
11	....	....	....	− 10	....	....	....	− 3	....	....	....	− 16	....	....	....	+ 10
10	....	....	....	− 1	....	....	....	+ 3	....	....	....	0	....	....	....	+ 8
9	....	....	....	+ 3	....	....	....	+ 5	....	....	....	+ 6	....	....	....	+ 8
8	....	....	....	+ 9	....	....	....	+ 10	....	....	....	+ 10	....	....	....	+ 13
7	....	....	....	+ 6	....	....	....	+ 6	....	....	....	+ 7	....	....	....	+ 9
6	....	....	....	+ 7	....	....	....	+ 7	....	....	....	+ 7	....	....	....	+ 8
5	....	....	....	+ 8	....	....	....	+ 8	....	....	....	+ 8	....	....	....	+ 9
4	....	....	....	+ 7	....	....	....	+ 7	....	....	....	+ 7	....	....	....	+ 8
3	....	....	....	+ 3	....	....	....	+ 3	....	....	....	+ 3	....	....	....	+ 4
2	....	....	....	+ 3	....	....	....	+ 3	....	....	....	+ 3	....	....	....	+ 4
1	....	....	....	+ 1	....	....	....	+ 1	....	....	....	+ 1	....	....	....	+ 1
Total..	....	....	....	−473	....	....	....	−116	....	....	....	− 69	....	....	....	+572
	Winnemucca, Nev., No. 115				Ely, Nev., No. 116				Guernsey, Wyo., No 117				Pierre, S. Dak., No. 118			
A	4300	+ 2	0	+ 2	6435	+ 2	0	+ 2	4336	+ 2	0	+ 2	1490	+ 2	0	+ 2
B	4300	+ 68	0	+ 68	6435	+ 68	0	+ 68	4340	+ 68	0	+ 68	1490	+ 64	0	+ 64
C	4300	+159	− 3	+156	6437	+164	− 4	+160	4340	+157	− 1	+156	1490	+124	0	+124
D	4300	+282	− 6	+276	6487	+314	− 6	+308	[illegible]	+282	− 6	+276	1490	+138	0	+138
E	4300	+328	− 8	+320	6625	+440	− 16	+424	4384	+331	− 8	+323	1490	+ 80	0	+ 80
F	4300	+230	− 10	+220	6800	+381	− 20	+361	4423	+225	− 10	+215	1490	+ 30	0	+ 30
G	4300	+120	− 12	+108	6875	+237	− 24	+213	4519	+121	− 13	+108	1490	+ 12	0	+ 12
H	4600	+ 83	− 21	+ 62	6835	+170	− 32	+138	4541	+ 79	− 18	+ 61	1490	+ 16	− 16	0
I	4425	+ 76	− 40	+ 36	6930	+142	− 60	+ 82	4616	+ 67	− 40	+ 27	1490	+ 20	− 20	0
J	4468	+ 35	− 48	− 13	7237	+ 73	− 79	− 6	4694	+ 40	− 48	− 8	1498	0	− 16	− 16
K	[illegible]	+ 29	− 69	− 40	7745	+ 74	−138	− 64	4750	+ 31	− 72	− 41	1597	0	− 20	− 20
L	4508	+ 28	−107	− 79	7446	+ 83	−170	−137	4839	0	− 96	− 96	1703	0	− 41	− 41
M	[illegible]	+ 14	−294	−280	[illegible]	+ 37	−396	−359	5114	+ 12	−305	−293	1771	0	−101	−101
N	5156	+ 14	−279	−265	6531	+ 20	−346	−326	5400	+ 11	−288	−277	1956	0	− 95	− 95
O	5643	0	−275	−275	[illegible]	0	−301	−301	5475	0	−268	−268	2107	0	−108	−108
18	....	....	....	− 55	....	....	....	− 59	....	....	....	− 54	....	....	....	− 22
17	....	....	....	− 54	....	....	....	− 57	....	....	....	− 55	....	....	....	− 22
16	....	....	....	− 57	....	....	....	− 57	....	....	....	− 56	....	....	....	− 23
15	....	....	....	− 56	....	....	....	− 56	....	....	....	− 54	....	....	....	− 26
14	....	....	....	− 54	....	....	....	− 51	....	....	....	− 52	....	....	....	− 26
13	....	....	....	− 77	....	....	....	− 79	....	....	....	− 84	....	....	....	− 48
12	....	....	....	− 32	....	....	....	− 39	....	....	....	− 48	....	....	....	− 37
11	....	....	....	− 8	....	....	....	− 17	....	....	....	− 33	....	....	....	− 26
10	....	....	....	+ 3	....	....	....	− 2	....	....	....	− 22	....	....	....	− 17
9	....	....	....	+ 4	....	....	....	0	....	....	....	− 6	....	....	....	− 8
8	....	....	....	+ 11	....	....	....	+ 11	....	....	....	+ 5	....	....	....	− 3
7	....	....	....	+ 8	....	....	....	+ 9	....	....	....	+ 7	....	....	....	+ 6
6	....	....	....	+ 8	....	....	....	+ 9	....	....	....	+ 9				+ 9
5	....	....	....	+ 9	....	....	....	+ 9	....	....	....	+ 10	....	....	....	+ 11
4	....	....	....	+ 8	....	....	....	+ 8	....	....	....	+ 8	....	....	....	+ 7
3	....	....	....	+ 4	....	....	....	+ 5	....	....	....	+ 5	....	....	....	+ 4
2	....	....	....	+ 4	....	....	....	+ 4	....	....	....	+ 3	....	....	....	+ 3
1	....	....	....	+ 1	....	....	....	+ 1	....	....	....	+ 1	....	....	....	+ 1
Total..	....	....	....	− 37	....	....	....	+202	....	....	....	−163	....	....	....	−132

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Fort Dodge, Iowa, No. 119				Keithsburg, Ill., No. 120				Grand Rapids, Mich., No. 121				Angola, Ind., No. 122			
A	1116	+ 2	0	+ 2	547	+ 2	0	+ 2	774	+ 2	0	+ 2	1043	+ 2	0	+ 2
B	1116	+ 64	0	+ 64	547	+56	0	+56	774	+60	0	+60	1043	+ 64	0	+ 64
C	1116	+108	0	+108	550	+64	0	+64	774	+84	0	+84	1043	+104	0	+104
D	1116	+ 96	0	+ 96	550	+36	0	+36	774	+54	0	+54	1040	+ 90	0	+ 90
E	1116	+ 48	0	+ 48	550	+16	0	+16	774	+24	0	+24	1040	+ 40	0	+ 40
F	1116	+ 20	0	+ 20	550	0	0	0	774	+10	0	+10	1040	+ 20	0	+ 20
G	1116	0	0	0	550	0	0	0	774	0	0	0	1000	0	0	0
H	1116	+ 4	− 4	0	550	0	0	0	774	0	0	0	1000	0	0	0
I	1116	+ 5	− 5	0	550	0	0	0	730	0	0	0	1000	0	0	0
J	1116	0	−16	− 16	550	0	−16	−16	737	0	−16	−16	1000	0	−16	− 16
K	1116	0	−20	− 20	550	0	−20	−20	737	0	−20	−20	1000	0	−20	− 20
L	1110	0	−24	− 24	550	0	−24	−24	690	0	−24	−24	971	0	−24	− 24
M	1150	0	−63	− 63	614	0	−33	−33	683	0	−37	−37	902	0	−53	− 53
N	1103	0	−54	− 54	662	0	−32	−32	711	0	−39	−39	744	0	−36	− 36
O	1139	0	−61	− 61	686	0	−38	−38	713	0	−44	−44	737	0	−41	− 41
18	......	......	......	− 11	......	......	......	− 7	......	......	......	− 7	......	......	......	− 7
17	......	......	......	− 11	......	......	......	− 7	......	......	......	− 7	......	......	......	− 7
16	......	......	......	− 11	......	......	......	− 7	......	......	......	− 7	......	......	......	− 7
15	......	......	......	− 12	......	......	......	− 7	......	......	......	− 8	......	......	......	− 8
14	......	......	......	− 13	......	......	......	− 9	......	......	......	− 9	......	......	......	− 9
13	......	......	......	− 22	......	......	......	−18	......	......	......	−16	......	......	......	− 16
12	......	......	......	− 15	......	......	......	−11	......	......	......	−10	......	......	......	− 9
11	......	......	......	− 14	......	......	......	− 8	......	......	......	− 4	......	......	......	− 4
10	......	......	......	− 11	......	......	......	− 6	......	......	......	− 1	......	......	......	+ 1
9	......	......	......	− 6	......	......	......	− 2	......	......	......	+ 1	......	......	......	+ 2
8	......	......	......	0	......	......	......	+ 3	......	......	......	+ 6	......	......	......	+ 6
7	......	......	......	+ 7	......	......	......	+ 7	......	......	......	+ 7	......	......	......	+ 7
6	......	......	......	+ 9	......	......	......	+ 8	......	......	......	+ 8	......	......	......	+ 8
5	......	......	......	+ 10	......	......	......	+10	......	......	......	+ 8	......	......	......	+ 8
4	......	......	......	+ 6	......	......	......	+ 7	......	......	......	+ 6	......	......	......	+ 6
3	......	......	......	+ 4	......	......	......	+ 5	......	......	......	+ 5	......	......	......	+ 5
2	......	......	......	+ 4	......	......	......	+ 3	......	......	......	+ 4	......	......	......	+ 4
1	......	......	......	+ 1	......	......	......	+ 1	......	......	......	+ 1	......	......	......	+ 1
Total...	......	......	......	+ 15	......	......	......	−27	......	......	......	+31	......	......	......	+111
	Albany, N. Y., No. 123				Port Jervis, N. Y., No. 124				Atlantic City, N. J., No. 125				Bridgehampton, N. Y., No. 126			
A	[illegible]	+ 2	0	+ 2	461	+ 2	0	+ 2	12	+ 2	0	+ 2	32	+ 2	0	+ 2
B	[illegible]	+40	0	+40	451	+56	0	+56	14	+ 2	0	+ 2	32	+ 8	0	+ 8
C	185	+13	0	+13	400	+52	0	+52	14	0	0	0	32	0	0	0
D	183	+ 6	0	+ 6	451	+23	0	+23	7	0	0	0	35	0	0	0
E	172	+ 7	0	+ 7	465	+ 9	0	+ 9	0	0	0	0	42	0	0	0
F	155	0	0	0	568	+ 4	0	+ 4	− 4	0	0	0	42	0	0	0
G	155	0	0	0	727	0	0	0	− 6	0	0	0	52	0	0	0
H	[illegible]	0	0	0	919	0	0	0	− 8	0	0	0	66	0	0	0
I	257	0	0	0	948	− 6	− 3	− 9	−10	0	0	0	22	0	0	0
J	306	0	− 2	− 2	956	0	−15	−15	− 9	0	0	0	− 8	0	0	0
K	393	0	− 7	− 7	830	0	−18	−18	− 2	0	0	0	−16	0	0	0
L	671	0	−15	−15	883	0	−27	−27	− 9	0	0	0	−31	0	+1	+ 1
M	922	0	−54	−54	1007	0	−58	−58	+ 4	0	0	0	−54	0	+3	+ 3
N	1215	0	−63	−63	888	0	−49	−49	−21	0	0	0	[illegible]	0	0	0
O	1071	0	−57	−57	713	0	−38	−38	+15	0	0	0	75	0	−1	− 1
18	......	......	......	− 8	......	......	......	− 7	......	......	......	+ 1	......	......	......	+ 1
17	......	......	......	− 8	......	......	......	− 7	......	......	......	+ 4	......	......	......	+ 5
16	......	......	......	− 8	......	......	......	− 4	......	......	......	+ 10	......	......	......	+ 8
15	......	......	......	− 5	......	......	......	− 2	......	......	......	+ 12	......	......	......	+ 7
14	......	......	......	− 4	......	......	......	0	......	......	......	+ 14	......	......	......	+ 8
13	......	......	......	+ 1	......	......	......	+ 7	......	......	......	+ 21	......	......	......	+ 24
12	......	......	......	+14	......	......	......	+17	......	......	......	+ 19	......	......	......	+ 22
11	......	......	......	+16	......	......	......	+17	......	......	......	+ 20	......	......	......	+ 25
10	......	......	......	+14	......	......	......	+14	......	......	......	+ 18	......	......	......	+ 20
9	......	......	......	+10	......	......	......	+10	......	......	......	+ 12	......	......	......	+ 13
8	......	......	......	+14	......	......	......	+14	......	......	......	+ 15	......	......	......	+ 17
7	......	......	......	+ 6	......	......	......	+ 6	......	......	......	+ 6	......	......	......	+ 6
6	......	......	......	+ 6	......	......	......	+ 6	......	......	......	+ 6	......	......	......	+ 6
5	......	......	......	+ 6	......	......	......	+ 6	......	......	......	+ 6	......	......	......	+ 6
4	......	......	......	+ 6	......	......	......	+ 6	......	......	......	+ 6	......	......	......	+ 6
3	......	......	......	+ 6	......	......	......	+ 6	......	......	......	+ 6	......	......	......	+ 6
2	......	......	......	+ 4	......	......	......	+ 4	......	......	......	+ 4	......	......	......	+ 4
1	......	......	......	+ 1	......	......	......	+ 1	......	......	......	+ 1	......	......	......	+ 1
Total...	......	......	......	−60	......	......	......	+26	......	......	......	+185	......	......	......	+198

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Chatham, Mass., No. 127				Rockland, Me., No. 128				Lancaster, N. H., No. 129				Whitehall, N. Y., No. 130			
A	5	+1	0	+ 1	31	+2	0	+ 2	856	+ 2	0	+ 2	125	+ 2	0	+ 2
B	10	+2	0	+ 2	32	+8	0	+ 8	858	+60	0	+60	125	+28	0	+ 28
C	[illegible]	0	0	0	30	0	0	0	851	+90	0	+90	129	+ 8	0	+ 8
D	20	0	0	0	34	0	0	0	870	+68	0	+68	167	+ 4	0	+ 4
E	10	0	0	0	42	0	0	0	[illegible]	+32	− 2	+30	200	+ 2	0	+ 2
F	4	0	0	0	51	0	0	0	[illegible]	+12	− 3	+ 9	224	0	0	0
G	5	0	0	0	80	0	0	0	1021	+ 4	− 4	0	298	0	0	0
H	− 5	0	0	0	92	0	0	0	1081	+ 2	− 5	− 3	325	0	0	0
I	− 10	0	0	0	54	0	0	0	1088	+10	−10	0	518	0	0	0
J	− 6	0	0	0	63	0	0	0	1231	+ 2	−13	−11	666	0	− 8	− 8
K	− 27	0	0	0	71	0	−1	− 1	1470	+ 2	−24	−22	642	0	−12	− 12
L	− 48	0	+1	+ 1	1	0	0	0	1421	0	−33	−33	823	0	−19	− 19
M	− 89	0	+4	+ 4	− 15	0	0	0	1557	0	−87	−87	1071	0	−60	− 60
N	−159	0	+9	+ 9	− 38	0	+2	+ 2	962	0	−52	−52	1088	0	−58	− 58
O	−126		+7	+ 7	165	0	−8	− 8	704	0	−38	−38	1071	0	−58	− 58
18				0				− 3				− 5				− 9
17				+ 1				− 4				− 5				− 8
16				+ 5				− 3				− 5				− 6
15				+ 10				− 3				− 5				− 6
14				+ 16				− 3				− 4				− 5
13				+ 37				+ 2				− 8				− 5
12				+ 33				+ 15				+ 3				+ 7
11				+ 27				+ 20				+10				+ 11
10				+ 21				+ 18				+14				+ 13
9				+ 13				+ 13				+11				+ 10
8				+ 18				+ 16				+13				+ 13
7				+ 6				+ 6				+ 6				+ 6
6				+ 6				+ 6				+ 6				+ 6
5				+ 6				+ 5				+ 6				+ 6
4				+ 6				+ 6				+ 6				+ 6
3				+ 6				+ 6				+ 6				+ 6
2				+ 4				+ 5				+ 5				+ 4
1				+ 1				+ 1				+ 1				+ 1
Total...				+240				+106				+68				−121
	Little Falls, N. Y., No. 131				Watertown, N. Y., No. 132				Southport, N. Y., No. 133				Erie, Pa., No. 134			
A	448	+ 2	0	+ 2	483	+ 2	0	+ 2	873	+ 2	0	+ 2	[illegible]	+ 2	0	+ 2
B	444	+56	0	+56	489	+56	0	+56	875	+60	0	+60	650	+58	0	+58
C	450	+53	0	+53	488	+58	0	+58	875	+94	0	+94	650	+76	0	+76
D	525	+21	0	+24	475	+29	0	+29	875	+69	0	+69	648	+48	0	+48
E	662	+ 7	0	+ 7	475	+ 8	0	+ 8	894	+32	0	+32	640	+16	0	+16
F	770	+ 2	− 1	+ 1	470	+ 2	0	+ 2	996	+18	− 4	+14	643	+10	0	+10
G	796	0	− 2	− 2	481	0	0	0	1038	+ 5	− 5	0	666	0	0	0
H	775	+ 3	− 4	− 1	536	+ 2	− 2	0	1136	+ 5	− 6	− 1	700	+ 7	− 7	0
I	842	+ 2	− 8	− 6	600	+ 7	− 7	0	1340	+ 7	−14	− 7	752	+ 9	− 9	0
J	914	0	−10	−10	619	0	− 7	− 7	1362	0	−16	−16	782	0	− 8	− 8
K	1102	0	−16	−16	670	0	−10	−10	1355	0	−20	−20	776	0	−13	−13
L	1254	0	−31	−31	665	0	−13	−13	1429	0	−34	−34	746	0	−18	−18
M	1179	0	−66	−66	714	0	−42	−42	1207	0	−68	−68	800	0	−44	−44
N	1188	0	−62	−62	706	0	−38	−38	1244	0	−65	−65	875	0	−47	−47
O	1050	0	−58	−58	786	0	−49	−49	1104	0	−60	−60	861	0	−51	−51
18				−10				− 8				− 9				−10
17				−10				− 7				− 8				−10
16				− 7				− 9				− 8				− 9
15				− 6				− 8				− 7				−11
14				− 6				− 8				− 7				−10
13				− 5				−13				− 5				−15
12				+ 8				− 1				+ 7				− 6
11				+ 9				+ 2				+ 8				− 2
10				+12				+ 8				+11				+ 5
9				+ 9				+ 7				+ 8				+ 5
8				+13				+11				+12				+ 9
7				+ 6				+ 7				+ 6				+ 6
6				+ 6				+ 6				+ 6				+ 7
5				+ 7				+ 6				+ 7				+ 7
4				+ 6				+ 5				+ 6				+ 6
3				+ 6				+ 6				+ 6				+ 5
2				+ 4				+ 5				+ 4				+ 4
1				+ 1				+ 1				+ 1				+ 1
Total...				−66				+ 6				+38				+11

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Parkersburg, W.Va., No. 135				Columbus, Ohio, No. 136				Indianapolis, Ind., No. 137				Springfield, Ill., No. 138			
A	606	+2	0	+2	760	+2	0	+2	713	+2	0	+2	600	+2	0	+2
B	615	+56	0	+56	760	+60	0	+60	710	+60	0	+60	600	+56	0	+56
C	618	+72	0	+72	755	+84	0	+84	710	+80	0	+80	600	+72	0	+72
D	612	+42	0	+42	757	+55	0	+55	710	+48	0	+48	600	+42	0	+42
E	631	+16	0	+16	752	+24	0	+24	700	+20	0	+20	595	+20	0	+20
F	622	+1	0	+1	758	+10	0	+10	700	+12	−2	+10	594	+5	0	+5
G	665	0	0	0	750	+2	−2	0	700	+3	−3	0	595	0	0	0
H	709	+3	−3	0	761	+3	−3	0	750	+3	−3	0	593	+3	−3	0
I	742	+8	−8	0	780	+8	−8	0	750	+10	−10	0	592	+5	−5	0
J	719	0	−16	−16	802	0	−11	−11	800	0	−8	−8	593	0	−8	−8
K	775	0	−20	−20	838	0	−15	−15	800	0	−10	−10	596	0	−10	−10
L	800	0	−24	−24	820	0	−24	−24	800	0	−24	−24	600	0	−12	−12
M	921	0	−52	−52	860	0	−56	−56	850	0	−50	−50	579	0	−28	−28
N	1000	0	−51	−51	994	0	−48	−48	794	0	−41	−41	581	0	−32	−32
O	1221	0	−68	−68	879	0	−56	−56	675	0	−34	−34	568	0	−30	−30
18	....	....	....	−14	....	....	....	−8	....	....	....	−7	....	....	....	−6
17	....	....	....	−14	....	....	....	−9	....	....	....	−7	....	....	....	−6
16	....	....	....	*−13*	....	....	....	*−10*	....	....	....	−7	....	....	....	−6
15	....	....	....	*−12*	....	....	....	*−9*	....	....	....	−7	....	....	....	−7
14	....	....	....	*−10*	....	....	....	*−9*	....	....	....	−7	....	....	....	−8
13	....	....	....	*−13*	....	....	....	*−15*	....	....	....	*−16*	....	....	....	*−17*
12	....	....	....	*−4*	....	....	....	*−8*	....	....	....	*−9*	....	....	....	*−10*
11	....	....	....	*+5*	....	....	....	*−3*	....	....	....	*−6*	....	....	....	*−8*
10	....	....	....	*+8*	....	....	....	*+5*	....	....	....	0	....	....	....	*−5*
9	....	....	....	*+7*	....	....	....	*+5*	....	....	....	*+2*	....	....	....	*−1*
8	....	....	....	*+8*	....	....	....	*+7*	....	....	....	*+5*	....	....	....	*+3*
7	....	....	....	*+5*	....	....	....	*+6*	....	....	....	*+7*	....	....	....	*+7*
6	....	....	....	*+6*	....	....	....	*+7*	....	....	....	*+8*	....	....	....	*+8*
5	....	....	....	*+8*	....	....	....	*+9*	....	....	....	*+9*	....	....	....	*+10*
4	....	....	....	*+7*	....	....	....	*+7*	....	....	....	*+7*	....	....	....	*+7*
3	....	....	....	*+6*	....	....	....	*+5*	....	....	....	*+5*	....	....	....	*+5*
2	....	....	....	*+3*	....	....	....	*+3*	....	....	....	*+3*	....	....	....	*+3*
1	....	....	....	*+1*	....	....	....	*+1*	....	....	....	*+1*	....	....	....	*+1*
Total..	....	....	....	−58	....	....	....	+9	....	....	....	+34	....	....	....	+47
	Lebanon, Mo., No. 139				Joplin, Mo., No. 140				Fort Smith, Ark., No. 141				Texarkana, Ark., No. 142			
A	1263	+2	0	+2	994	+2	0	+2	442	+2	0	+2	325	+2	0	+2
B	1260	+64	0	+64	995	+64	0	+64	450	+56	0	+56	325	+48	0	+48
C	1261	+116	0	+116	995	+104	0	+104	450	+52	0	+52	323	+36	0	+36
D	1260	+114	0	+114	992	+84	0	+84	450	+24	0	+24	318	+14	0	+14
E	1225	+70	−4	+66	988	+43	−3	+40	450	+8	0	+8	310	+8	0	+8
F	1230	+31	−5	+26	1002	+19	−3	+16	465	0	0	0	308	0	0	0
G	1233	+10	−6	+4	988	+4	−4	0	479	0	0	0	316	0	0	0
H	1206	+6	−6	0	997	+5	−5	0	462	0	0	0	316	0	0	0
I	1145	+10	−10	0	992	+10	−10	0	459	+5	−5	0	310	0	0	0
J	1131	+3	−12	−9	972	0	−16	−16	512	+4	−8	−4	300	0	0	0
K	1145	0	−20	−20	955	0	−20	−20	552	0	−7	−7	285	0	−6	−6
L	1096	0	−24	−24	1000	0	−24	−24	633	0	−14	−14	367	0	−8	−8
M	1129	0	−63	−63	1029	0	−57	−57	871	0	−50	−50	351	0	−21	−21
N	1131	0	−55	−55	1038	0	−54	−54	1006	0	−52	−52	406	0	−28	−28
O	1032	0	−57	−57	1032	0	−62	−62	911	0	−47	−47	512	0	−33	−33
18	....	....	....	−9	....	....	....	−12	....	....	....	−8	....	....	....	−5
17	....	....	....	−9	....	....	....	−11	....	....	....	−7	....	....	....	−5
16	....	....	....	−9	....	....	....	−11	....	....	....	−7	....	....	....	−5
15	....	....	....	−7	....	....	....	−10	....	....	....	*−8*	....	....	....	*−5*
14	....	....	....	−7	....	....	....	−10	....	....	....	−8	....	....	....	*−5*
13	....	....	....	*−17*	....	....	....	*−17*	....	....	....	*−14*	....	....	....	*−8*
12	....	....	....	*−11*	....	....	....	*−12*	....	....	....	*−11*	....	....	....	*−5*
11	....	....	....	*−11*	....	....	....	*−13*	....	....	....	*−10*	....	....	....	*−6*
10	....	....	....	*−8*	....	....	....	*−11*	....	....	....	*−8*	....	....	....	*−6*
9	....	....	....	*−4*	....	....	....	*−5*	....	....	....	*−4*	....	....	....	*−3*
8	....	....	....	*+1*	....	....	....	*+1*	....	....	....	*+2*	....	....	....	*+3*
7	....	....	....	*+8*	....	....	....	*+8*	....	....	....	*+8*	....	....	....	*+8*
6	....	....	....	*+9*	....	....	....	*+9*	....	....	....	*+9*	....	....	....	*+9*
5	....	....	....	*+11*	....	....	....	*+11*	....	....	....	*+11*	....	....	....	*+11*
4	....	....	....	*+8*	....	....	....	*+7*	....	....	....	*+8*	....	....	....	*+8*
3	....	....	....	*+5*	....	....	....	*+5*	....	....	....	*+5*	....	....	....	*+5*
2	....	....	....	*+3*	....	....	....	*+3*	....	....	....	*+3*	....	....	....	*+3*
1	....	....	....	*+1*	....	....	....	*+1*	....	....	....	*+1*	....	....	....	*+1*
Total..	....	....	....	+118	....	....	....	+10	....	....	....	−70	....	....	....	+7

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Hot Springs, Ark., No. 143				Alexandria, La., No. 144				Laurel, Miss., No. 145				Richmond, Va., No. 146			
A	620	+2	0	+2	76	+2	0	+2	250	+2	0	+2	97	+2	0	+2
B	620	+56	0	+56	76	+20	0	+20	250	+44	0	+44	100	+24	0	+24
C	620	+72	0	+72	76	+4	0	+4	250	+24	0	+24	85	+4	0	+4
D	640	+40	0	+40	76	+2	0	+2	250	+9	0	+9	93	+2	0	+2
E	678	+17	0	+17	76	0	0	0	250	+2	0	+2	[illegible]	0	0	0
F	665	+10	0	+10	76	0	0	0	250	0	0	0	100	0	0	0
G	658	+2	−2	0	100	0	0	0	250	0	0	0	124	0	0	0
H	601	+3	−3	0	100	0	0	0	250	0	−1	−1	144	0	0	0
I	604	0	−6	−6	100	0	0	0	250	0	−2	−2	152	0	0	0
J	[illegible]	0	−5	−5	100	0	0	0	250	0	−3	−3	156	0	0	0
K	658	0	−14	−14	100	0	0	0	300	0	−5	−5	[illegible]	0	0	0
L	604	0	−11	−11	100	0	0	0	300	0	−7	−7	156	0	0	0
M	607	0	−34	−34	84	0	0	0	250	0	−14	−14	158	0	−8	−8
N	[illegible]	0	−33	−33	75	0	0	0	172	0	−9	−9	187	0	−12	−12
O	632	0	−35	−35	[illegible]	0	0	0	147	0	−5	−5	314	0	−16	−16
18				−6				−1				−1				−5
17				−6				−1				−1				−6
16				−6				−1				0				−7
15				−6				+1				+1				−7
14				−6				+2				+2				−2
13				−9				+8				+9				+13
12				−7				+8				+10				+18
11				−6				+1				+5				+18
10				−4				−3				+4				+18
9				−5				−1				+1				+12
8				+2				+5				+5				+12
7				+8				+8				+7				+5
6				+9				+10				+9				+6
5				+11				+10				+10				+8
4				+7				+8				+8				+7
3				+5				+6				+6				+6
2				+3				+2				+3				+3
1				+1				+1				+1				+1
Total..				+44				+91				+114				+96
	Emporia, Va., No. 147				Greenville, N. C., No. 148				Wilmington, N. C., No. 149				Cheraw, S. C., No. 150			
A	120	+2	0	+2	55	+2	0	+2	28	+2	0	+2	180	+2	0	+2
B	120	+28	0	+28	55	+14	0	+14	28	+8	0	+8	180	+36	0	+36
C	120	+4	0	+4	55	+4	0	+4		0	0	0	180	+12	0	+12
D	120	+1	0	+1	32	0	0	0		0	0	0	180	+6	0	+6
E	120	0	0	0	39	0	0	0		0	0	0	180	0	0	0
F	120	0	0	0	35	0	0	0		0	0	0	200	0	0	0
G	120	0	0	0	38	0	0	0		0	0	0	200	0	0	0
H	120	0	0	0	41	0	0	0		0	0	0	200	0	0	0
I	120	0	0	0	50	0	0	0		0	0	0	300	0	0	0
J	120	0	0	0	[illegible]	0	0	0		0	0	0	300	0	0	0
K	120	0	0	0	56	0	0	0		0	0	0	300	0	0	0
L	120	0	0	0	65	0	0	0		0	0	0	300	0	0	0
M	94	0	0	0	69	0	−4	−4	−5	0	0	0	[illegible]	0	−18	−18
N	149	0	−10	−10	64	0	−3	−3	15	0	0	0	291	0	−16	−16
O	212	0	−10	−10	111	0	−5	−5	−42	0	+4	+4	315	0	−16	−16
18				−3				−1				+2				−4
17				−4				+1				+4				−5
16				−4				+3				+9				−5
15				+5				+7				+13				+2
14				+7				+12				+21				+4
13				+15				+34				+34				+16
12				+20				+24				+29				+16
11				+21				+22				+26				+18
10				+17				+19				+20				+18
9				+12				+13				+13				+12
8				+12				+13				+13				+10
7				+5				+5				+5				+6
6				+6				+6				+6				+6
5				+8				+8				+8				+9
4				+7				+7				+7				+7
3				+6				+6				+6				+6
2				+3				+3				+3				+3
1				+1				+1				+1				+1
Total..				+149				+191				+234				+126

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Charlotte, N. C., No. 151				Asheville, N. C., No. 152				Cleveland, Tenn., No. 153				Winston-Salem, N. C., No. 154			
A	750	+2	0	+2	2199	+2	0	+2	864	+2	0	+2	932	+2	0	+2
B	750	+60	0	+60	2200	+68	0	+68	864	+60	0	+60	932	+64	0	+64
C	750	+84	0	+84	[illegible]	+140	0	+140	864	+94	0	+94	932	+98	0	+98
D	[illegible]	+56	0	+56	2200	+196	-4	+192	864	+70	-1	+69	[illegible]	+78	0	+78
E	700	+24	0	+24	[illegible]	+156	-4	+152	870	+30	-2	+28	[illegible]	+39	-2	+37
F	705	+12	-2	+10	2220	+79	-5	+74	845	+13	-3	+10	900	+13	-3	+10
G	707	+2	-2	0	2225	+41	-12	+29	872	+3	-3	0	900	+3	-3	0
H	702	+3	-3	0	2162	+19	-16	+3	834	+3	-3	0	900	+3	-3	0
I	701	+6	-6	0	2265	+20	-20	0	825	+8	-8	0	900	+8	-8	0
J	697	+1	-8	-7	2312	+5	-21	-16	853	0	-16	-16	900	0	-16	-16
K	673	0	-11	-11	2590	+7	-42	-35	828	0	-20	-20	900	0	-20	-20
L	688	0	-24	-24	2871	0	-68	-68	850	0	-24	-24	900	0	-24	-24
M	595	0	-34	-34	2657	+5	-158	-153	1157	0	-67	-67	829	0	-46	-46
N	[illegible]	0	-38	-38	1706	0	-85	-85	1394	0	-71	-71	925	0	-51	-51
O	904	0	-50	-50	1415	0	-74	-74	1236	0	-65	-65	1146	0	-67	-67
18	....	....	....	-9	....	....	....	-12	....	....	....	-10	....	....	....	-10
17	....	....	....	-9	....	....	....	-11	....	....	....	-10	....	....	....	-10
16	....	....	....	-9	....	....	....	-10	....	....	....	-9	....	....	....	-10
15	....	....	....	-3	....	....	....	-9	....	....	....	-7	....	....	....	-5
14	....	....	....	0	....	....	....	-5	....	....	....	-5	....	....	....	-3
13	....	....	....	+7	....	....	....	-7	....	....	....	-7	....	....	....	-2
12	....	....	....	+11	....	....	....	+2	....	....	....	0	....	....	....	+10
11	....	....	....	+14	....	....	....	+8	....	....	....	+5	....	....	....	+14
10	....	....	....	+16	....	....	....	+14	....	....	....	+10	....	....	....	+17
9	....	....	....	+11	....	....	....	+9	....	....	....	+6	....	....	....	+11
8	....	....	....	+9	....	....	....	+8	....	....	....	+6	....	....	....	+10
7	....	....	....	+6	....	....	....	+6	....	....	....	+6	....	....	....	+5
6	....	....	....	+6	....	....	....	+7	....	....	....	+7	....	....	....	+6
5	....	....	....	+9	....	....	....	+10	....	....	....	+10	....	....	....	+9
4	....	....	....	+7	....	....	....	+7	....	....	....	+7	....	....	....	+7
3	....	....	....	+6	....	....	....	+6	....	....	....	+6	....	....	....	+6
2	....	....	....	+3	....	....	....	+3	....	....	....	+3	....	....	....	+3
1	....	....	....	+1	....	....	....	+1	....	....	....	+1	....	....	....	+1
Total..	....	....	....	+148	....	....	....	+256	....	....	....	+19	....	....	....	+124
	Knoxville, Tenn., No. 155				Bristol, Va., No. 156				Homestead, Fla., No. 157				Sebring, Fla., No. 158			
A	919	+2	0	+2	1685	+2	0	+2	14	+2	0	+2	112	+2	0	+2
B	919	+64	0	+64	1685	+68	0	+68	12	0	0	0	112	+26	0	+26
C	920	+96	0	+96	1685	+128	0	+128	14	0	0	0	115	+4	0	+4
D	[illegible]	+78	0	+78	1685	+156	0	+156	14	0	0	0	112	0	0	0
E	900	+38	-2	+36	1700	+104	-4	+100	14	0	0	0	100	0	0	0
F	890	+15	-3	+12	1725	+55	-5	+50	14	0	0	0	100	0	0	0
G	[illegible]	+6	-3	+3	1779	+30	-6	+24	14	0	0	0	100	0	0	0
H	[illegible]	+3	-3	0	1846	+10	-10	0	14	0	0	0	100	0	0	0
I	905	+8	-8	0	[illegible]	+20	-20	0	14	0	0	0	100	0	0	0
J	925	0	-16	-16	1825	0	-16	-16	14	0	0	0	100	0	0	0
K	925	0	-20	-20	1840	+3	-29	-26	2	0	0	0	100	0	0	0
L	1004	0	-24	-24	2100	0	-51	-51	[illegible]	0	0	0	[illegible]	0	0	0
M	[illegible]	0	-79	-79	2371	+2	-139	-137	-77	0	+4	+4	83	0	-4	-4
N	1719	0	-88	-88	2125	0	-110	-110	-312	0	+19	+19	68	0	-4	-4
O	1550	0	-86	-86	1575	0	-87	-87	-439	0	+21	+21	11	0	0	0
18	....	....	....	-13	....	....	....	-14	....	....	....	+5	....	....	....	+1
17	....	....	....	-12	....	....	....	-13	....	....	....	+4	....	....	....	+2
16	....	....	....	-11	....	....	....	-12	....	....	....	+4	....	....	....	+4
15	....	....	....	-8	....	....	....	-10	....	....	....	+5	....	....	....	+6
14	....	....	....	-6	....	....	....	-6	....	....	....	+9	....	....	....	+9
13	....	....	....	-9	....	....	....	-8	....	....	....	+36	....	....	....	+29
12	....	....	....	-1	....	....	....	+2	....	....	....	+41	....	....	....	+31
11	....	....	....	+5	....	....	....	+8	....	....	....	+47	....	....	....	+34
10	....	....	....	+11	....	....	....	+13	....	....	....	+27	....	....	....	+23
9	....	....	....	+7	....	....	....	+9	....	....	....	+15	....	....	....	+14
8	....	....	....	+6	....	....	....	+8	....	....	....	+16	....	....	....	+13
7	....	....	....	+6	....	....	....	+6	....	....	....	+5	....	....	....	+5
6	....	....	....	+7	....	....	....	+7	....	....	....	+5	....	....	....	+6
5	....	....	....	+10	....	....	....	+10	....	....	....	+10	....	....	....	+10
4	....	....	....	+7	....	....	....	+7	....	....	....	+8	....	....	....	+8
3	....	....	....	+6	....	....	....	+6	....	....	....	+6	....	....	....	+6
2	....	....	....	+3	....	....	....	+3	....	....	....	+2	....	....	....	+2
1	....	....	....	+1	....	....	....	+1	....	....	....	+1	....	....	....	+1
Total..	....	....	....	-13	....	....	....	+118	....	....	....	+292	....	....	....	+228

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Titusville, Fla., No. 159				Leesburg, Fla., No. 160				Cedar Keys, Fla., No. 161				Macon, Ga., No. 162			
A	8	+2	0	+ 2	100	+ 2	0	+ 2	8	+2	0	+ 2	320	+ 2	0	+ 2
B	8	0	0	0	95	+24	0	+ 24	8	0	0	0	337	+50	0	+50
C	10	0	0	0	90	+ 4	0	+ 4	4	0	0	0	326	+36	0	+36
D	10	0	0	0	80	+ 3	0	+ 3	4	0	0	0	300	+15	0	+15
E	10	0	0	0	80	0	0	0	2	0	0	0	300	+ 4	0	+ 4
F	10	0	0	0	80	0	0	0	2	0	0	0	300	0	0	0
G	10	0	0	0	80	0	0	0	2	0	0	0	300	0	− 1	− 1
H	10	0	0	0	80	0	0	0	2	0	0	0	350	0	− 2	− 2
I	10	0	0	0	80	0	0	0	2	0	0	0	350	0	− 3	− 3
J	10	0	0	0	80	0	0	0	2	0	0	0	400	0	− 4	− 4
K	10	0	0	0	80	0	0	0	2	0	0	0	400	0	− 6	− 6
L	15	0	0	0	80	0	0	0	2	0	0	0	400	0	−10	−10
M	6	0	0	0	92	0	−4	− 4	− 5	0	0	0	457	0	−26	−26
N	− 35	0	0	0	59	0	−3	− 3	9	0	0	0	481	0	−30	−30
O	−302	0	+17	+ 17	18	0	0	0	22	0	0	0	525	0	−30	−30
18				+ 4				0				0				− 5
17				+ 5				+ 1				0				− 5
16				+ 5				+ 2				0				− 5
15				+ 5				+ 6				+ 7				− 3
14				+ 8				+ 8				+ 10				− 2
13				+ 26				+ 24				+ 22				+ 1
12				+ 30				+ 26				+ 20				+ 6
11				+ 34				+ 28				+ 20				+11
10				+ 24				+ 21				+ 18				+16
9				+ 14				+ 14				+ 13				+10
8				+ 14				+ 12				+ 11				+ 8
7				+ 5				+ 5				+ 6				+ 6
6				+ 6				+ 6				+ 7				+ 7
5				+ 10				+ 10				+ 10				+10
4				+ 8				+ 8				+ 7				+ 7
3				+ 6				+ 6				+ 6				+ 6
2				+ 2				+ 2				+ 3				+ 3
1				+ 1				+ 1				+ 1				+ 1
Total..				+226				+206				+163				+67

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Albany, Ga., No. 163				Pensacola, Fla., No. 164				Opelika, Ala., No. 165				Huntsville, Ala., No. 166			
A	190	+ 2	0	+ 2	6	+1	0	+ 1	805	+ 2	0	+ 2	655	+ 2	0	+ 2
B	200	+40	0	+ 40	11	+2	0	+ 2	806	+60	0	+ 60	655	+58	0	+58
C	200	+16	0	+ 16	11	0	0	0	800	+88	0	+ 88	655	+76	0	+76
D	200	+ 6	0	+ 6	11	0	0	0	800	+63	0	+ 63	650	+48	0	+48
E	200	+ 1	0	+ 1		0	0	0	800	+28	0	+ 28	650	+16	0	+16
F	200	0	0	0		0	0	0	750	+12	− 2	+ 10	630	+10	0	+10
G	200	0	0	0		0	0	0	754	+ 4	− 3	+ 1	675	0	0	0
H	200	0	− 1	− 1		0	0	0	750	+ 3	− 3	0	772	+ 3	− 3	0
I	250	0	− 2	− 2		0	0	0	732	+ 7	− 8	− 1	762	+ 8	− 8	0
J	250	0	− 3	− 3		0	0	0	657	0	−16	− 16	735	0	−16	−16
K	300	0	− 4	− 4		0	0	0	650	0	−20	− 20	715	0	−20	−20
L	300	0	− 7	− 7		0	0	0	610	0	−16	− 16	742	0	−24	−24
M	261	0	−13	− 13	21	0	0	0	557	0	−32	− 32	837	0	−47	−47
N	208	0	−12	− 12	− 16	0	0	0	581	0	−31	− 31	812	0	−43	−43
O	300	0	−15	− 15	−158	0	+9	+ 9	532	0	−33	− 33	711	0	−40	−40
18				− 2				+ 1				− 5				− 8
17				− 3				+ 3				− 5				− 7
16				− 3				+ 3				− 4				− 8
15				+ 2				+ 6				− 2				− 6
14				+ 4				+ 8				0				− 6
13				+ 8				+ 16				+ 2				− 8
12				+ 8				+ 13				+ 4				− 3
11				+ 10				+ 8				+ 7				+ 2
10				+ 15				+ 9				+ 12				+ 8
9				+ 11				+ 5				+ 8				+ 5
8				+ 9				+ 7				+ 7				+ 5
7				+ 6				+ 7				+ 6				+ 6
6				+ 7				+ 9				+ 7				+ 7
5				+ 10				+ 10				+ 10				+10
4				+ 7				+ 8				+ 7				+ 7
3				+ 6				+ 6				+ 6				+ 6
2				+ 3				+ 3				+ 3				+ 3
1				+ 1				+ 1				+ 1				+ 1
Total..				+107				+135				+167				+34

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Arkansas City, Ark., No. 167				**Memphis, Tenn., No. 168**				**Mammoth Spring, Ark., No. 169**				**Hopkinsville, Ky., No. 170**			
A	143	+ 2	0	+ 2	264	+ 2	0	+ 2	512	+ 2	0	+ 2	577	+ 2	0	+ 2
B	143	+32	0	+32	264	+44	0	+44	512	+56	0	+56	577	+56	0	+56
C	143	+10	0	+10	264	+28	0	+28	512	+60	0	+60	577	+68	0	+68
D	134	+ 3	0	+ 3	264	+ 6	0	+ 6	512	+30	0	+30	600	+36	0	+36
E	143	0	0	0	264	+ 4	0	+ 4	600	+16	0	+16	600	+16	0	+16
F	143	0	0	0	264	0	0	0	600	+ 5	0	+ 5	600	+ 5	0	+ 5
G	143	0	0	0	264	0	0	0	600	0	0	0	600	0	0	0
H	143	0	0	0	264	0	0	0	700	+ 3	− 3	0	600	+ 3	− 3	0
I	143	0	0	0	264	0	− 2	− 2	700	+ 2	− 6	− 4	600	+ 2	− 6	− 4
J	143	0	0	0	264	0	− 3	− 3	700	0	−11	−11	600	0	− 8	− 8
K	143	0	0	0	264	0	− 4	− 4	700	0	−14	−14	600	0	−10	−10
L	143	0	− 3	− 3	264	0	− 6	− 6	700	0	−17	−17	600	0	−12	−12
M	[illegible]	0	− 7	− 7	307	0	−15	−15	679	0	−40	−40	500	0	−28	−28
N	[illegible]	0	− 6	− 6	[illegible]	0	−20	−20	659	0	−38	−38	500	0	−32	−32
O	141	0	− 7	− 7	341	0	−19	−19	711	0	−40	−40	529	0	−29	−29
18				− 2				− 4				− 7				− 6
17				− 3				− 4				− 7				− 6
16				− 3				− 4				− 6				− 6
15				− 4				− 5				− 6				− 7
14				− 4				− 5				− 6				− 7
13				− 2				− 8				−13				−12
12				− 1				− 5				− 9				− 6
11				− 1				− 3				− 7				− 2
10				0				+ 1				− 4				+ 3
9				− 2				− 1				− 3				+ 2
8				+ 3				+ 3				+ 2				+ 4
7				+ 8				+ 7				+ 7				+ 7
6				+ 9				+ 8				+ 8				+ 8
5				+11				+10				+10				+10
4				+ 7				+ 7				+ 7				+ 7
3				+ 5				+ 6				+ 6				+ 6
2				+ 3				+ 3				+ 3				+ 3
1				+ 1				+ 1				+ 1				+ 1
Total				+49				+22				−19				+59
	Danville, Ky., No. 171				**Clifton Forge, Va., No. 172**				**Greenville, Ala., No. 173**				**Birmingham, Ala., No. 174**			
A	983	+ 2	0	+ 2	1066	+ 2	0	+ 2	427	+ 2	0	+ 2	586	+ 2	0	+ 2
B	983	+ 64	0	+ 64	1066	+ 64	0	+ 64	427	+56	0	+56	590	+56	0	+56
C	983	+104	0	+104	1066	+108	0	+108	400	+52	0	+52	590	+72	0	+72
D	983	+ 84	0	+ 84	1066	+ 90	0	+ 90	400	+20	0	+20	590	+42	0	+42
E	983	+ 40	0	+ 40	1212	+ 49	− 2	+ 47	400	+ 8	0	+ 8	600	+16	0	+16
F	[illegible]	+ 19	− 3	+ 16	1320	+ 23	− 4	+ 19	400	0	− 1	− 1	624	+ 5	0	+ 5
G	[illegible]	+ 3	− 3	0	1350	+ 4	− 5	− 1	400	0	− 1	− 1	671	0	0	0
H	953	+ 5	− 5	0	[illegible]	+ 6	− 8	− 2	300	0	− 2	− 2	666	+ 3	− 3	0
I	[illegible]	+ 10	− 10	0	1515	+ 6	− 14	− 8	300	0	− 2	− 2	685	+ 8	− 8	0
J	[illegible]	0	− 16	− 16	1850	+ 4	− 20	− 16	300	0	− 3	− 3	644	0	−15	−15
K	940	0	− 20	− 20	1920	+ 1	− 31	− 30	300	0	− 4	− 4	640	0	−17	−17
L	900	0	− 24	− 24	[illegible]	0	− 45	− 45	300	0	− 7	− 7	615	0	−13	−13
M	879	0	− 50	− 50	1971	0	−115	−115	257	0	−15	−15	536	0	−28	−28
N	[illegible]	0	− 42	− 42	1888	0	− 97	− 97	181	0	−10	−10	531	0	−29	−29
O	[illegible]	0	− 49	− 49	1404	0	− 75	− 75	271	0	−12	−12	511	0	−25	−25
18				− 9				− 11				− 2				− 5
17				− 9				− 10				− 2				− 5
16				− 10				− 10				− 2				− 5
15				− 8				− 8				+ 1				− 5
14				− 6				− 7				+ 2				− 4
13				− 11				− 8				+ 8				− 2
12				− 4				+ 5				+ 6				+ 1
11				+ 1				+ 11				+ 6				+ 4
10				+ 6				+ 15				+ 9				+ 9
9				+ 5				+ 10				+ 7				+ 5
8				+ 6				+ 10				+ 7				+ 5
7				+ 6				+ 5				+ 7				+ 7
6				+ 7				+ 6				+ 8				+ 8
5				+ 10				+ 8				+11				+11
4				+ 7				+ 7				+ 7				+ 7
3				+ 6				+ 6				+ 5				+ 5
2				+ 3				+ 3				+ 3				+ 3
1				+ 1				+ 1				+ 1				+ 1
Total				+110				− 26				+163				+106

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Lexington, Va., No. 175				Prestonsburg, Ky., No. 176				Traverse City, Mich., No. 177				Seney, Mich, No. 178			
A	1063	+ 2	0	+ 2	634	+ 2	0	+ 2	591	+ 2	0	+ 2	730	+ 2	0	+ 2
B	1063	+ 64	0	+ 64	634	+56	0	+56	591	+58	0	+58	730	+60	0	+60
C	1063	+108	0	+108	634	+76	0	+76	600	+72	0	+72	730	+84	0	+84
D	1063	+ 94	0	+ 94	750	+36	0	+36	580	+39	0	+39	730	+51	0	+51
E	1000	+ 46	− 2	+ 44	744	+16	0	+16	581	+16	0	+16	730	+26	− 2	+24
F	1030	+ 18	− 3	+ 15	860	+ 9	− 2	+ 7	572	+ 4	0	+ 4	700	+ 9	− 2	+ 7
G	1058	+ 4	− 4	0	883	+ 3	− 3	0	581	0	0	0	700	+ 2	− 2	0
H	1094	+ 5	− 5	0	869	+ 4	− 4	0	609	+ 2	− 2	0	700	+ 3	− 3	0
I	1140	+ 10	−10	0	885	+ 8	− 8	0	592	+ 5	− 5	0	700	+ 2	− 7	− 5
J	1312	+ 3	−16	− 13	900	+ 6	−16	−10	[illegible]	0	− 6	− 6	700	+ 1	−10	− 9
K	1725	+ 2	−20	− 18	880	+ 4	−20	−16	648	0	−10	−10	700	0	−12	−12
L	1725	0	−43	− 43	988	0	−24	−24	704	0	−17	−17	692	0	−16	−16
M	1493	0	−84	− 84	1050	0	−59	−59	743	0	−41	−41	625	0	−35	−35
N	1550	0	−81	− 81	1106	0	−56	−56	644	0	−33	−33	500	0	−28	−28
O	1446	0	−75	− 75	1296	0	−69	−69	636	0	−37	−37	539	0	−27	−27
18				− 11				−14				− 6				− 6
17				− 10				−14				− 6				− 7
16				− 10				−13				− 6				− 7
15				− 7				−10				− 7				− 7
14				− 6				− 8				− 8				− 8
13				− 8				−10				−16				−16
12				+ 7				− 1				−11				−11
11				+ 13				+ 5				− 6				− 5
10				+ 16				+10				− 3				− 2
9				+ 11				+ 7				0				0
8				+ 10				+ 7				+ 5				+ 6
7				+ 5				+ 5				+ 6				+ 6
6				+ 6				+ 6				+ 7				+ 7
5				+ 8				+ 9				+ 7				+ 7
4				+ 7				+ 7				+ 5				+ 5
3				+ 6				+ 6				+ 5				+ 5
2				+ 3				+ 3				+ 5				+ 5
1				+ 1				+ 1				+ 1				+ 1
Total..				+ 54				−45				+19				+69
	Oconto, Wis., No. 179				Grand Rapids, Wis., No. 180				Winona, Minn., No. 181				Baldwin, Wis., No. 182			
A	594	+ 2	0	+ 2	1004	+ 2	0	+ 2	660	+ 2	0	+ 2	1122	+ 2	0	+ 2
B	594	+58	0	+58	1003	+ 64	0	+ 64	660	+58	0	+58	1122	+ 64	0	+ 64
C	594	+70	0	+70	1000	+104	0	+104	660	+76	0	+76	1122	+108	0	+108
D	600	+40	0	+40	1000	+ 84	0	+ 84	660	+48	0	+48	1120	+102	0	+102
E	600	+16	0	+16	1000	+ 40	0	+ 40	656	+20	0	+20	1120	+ 54	− 2	+ 52
F	600	+ 5	0	+ 5	1000	+ 19	− 2	+ 17	650	+ 7	− 2	+ 5	1100	+ 23	− 3	+ 20
G	600	+ 2	− 2	0	1000	+ 8	− 4	+ 4	775	+ 5	− 3	+ 2	1100	+ 10	− 4	+ 6
H	600	+ 3	− 3	0	1000	+ 5	− 5	0	931	+ 5	− 5	0	1100	+ 6	− 6	0
I	600	+ 6	− 6	0	1000	+ 9	− 9	0	985	+10	−10	0	1100	+ 5	−10	− 5
J	600	0	− 6	− 6	1000	0	−12	− 12	988	0	−10	−10	1100	+ 2	−12	− 10
K	590	0	−10	−10	975	0	−16	− 16	985	0	−16	−16	1100	0	−17	− 17
L	600	0	−14	−14	979	0	−23	− 23	1004	0	−24	−24	1054	0	−24	− 24
M	679	0	−36	−36	1029	0	−56	− 56	993	0	−56	−56	921	0	−53	− 53
N	688	0	−37	−37	969	0	−48	− 48	1081	0	−50	−50	1000	0	−49	− 49
O	900	0	−53	−53	1021	0	−58	− 58	1096	0	−59	−59	1079	0	−56	− 56
18				− 9				− 10				−11				− 11
17				− 9				− 10				−11				− 12
16				− 8				− 9				−11				− 11
15				− 7				− 9				−11				− 12
14				− 8				− 9				−11				− 12
13				−17				− 18				−19				− 21
12				−11				− 12				−13				− 15
11				− 7				− 7				− 8				− 11
10				− 5				− 5				− 6				− 9
9				− 1				− 2				− 3				− 5
8				+ 3				+ 3				+ 3				0
7				+ 6				+ 6				+ 6				+ 6
6				+ 8				+ 8				+ 9				+ 9
5				+ 8				+ 9				+10				+ 10
4				+ 6				+ 6				+ 6				+ 6
3				+ 4				+ 4				+ 4				+ 4
2				+ 4				+ 4				+ 4				+ 4
1				+ 1				+ 1				+ 1				+ 1
Total..				− 7				+ 52				−65				+ 61

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Cumberland, Wis., No. 183				Cambridge, Minn., No. 184				Brainerd, Minn., No. 185				Aberdeen, S. Dak., No. 186			
A	1245	+ 2	0	+ 2	994	+ 2	0	+ 2	1205	+ 2	0	+ 2	1299	+ 2	0	+ 2
B	1246	+ 64	0	+ 64	994	+ 64	0	+ 64	1205	+ 64	0	+ 64	1300	+ 64	0	+ 64
C	1248	+116	0	+116	994	+104	0	+104	1210	+116	0	+116	1300	+120	0	+120
D	1250	+114	0	+114	1000	+ 84	0	+ 84	1204	+108	0	+108	1300	+120	0	+120
E	1250	+ 66	− 2	+ 64	1000	+ 42	− 2	+ 40	1200	+ 62	− 2	+ 60	1300	+ 66	− 2	+ 64
F	1200	+ 24	− 4	+ 20	1000	+ 20	− 3	+ 17	1200	+ 23	− 3	+ 20	1300	+ 34	− 4	+ 30
G	1200	+ 10	− 4	+ 6	1000	+ 8	− 4	+ 4	1200	+ 10	− 4	+ 6	1305	+ 15	− 5	+ 10
H	1200	+ 6	− 6	0	1000	+ 5	− 5	0	1200	+ 12	− 6	+ 6	1305	+ 6	− 6	0
I	1200	+ 5	−11	− 6	1000	+ 9	− 9	0	1200	+ 5	−11	− 6	1304	+ 12	−12	0
J	1200	+ 3	−13	− 10	1000	0	−12	− 12	1200	+ 3	−13	− 10	1314	0	−16	− 16
K	1200	+ 2	−20	− 18	1000	0	−16	− 16	1200	+ 2	−20	− 18	1332	0	−20	− 20
L	1200	0	−29	− 29	958	0	−24	− 24	1200	0	−29	− 29	1335	0	−32	− 32
M	1100	0	−61	− 61	971	0	−56	− 56	1221	0	−68	− 68	1354	0	−76	− 76
N	1056	0	−53	− 53	1050	0	−49	− 49	1269	0	−65	− 65	1606	0	−83	− 83
O	1071	0	−58	− 58	1100	0	−57	− 57	1200	0	−70	− 70	1586	0	−92	− 92
18				− 11				− 11				− 12				− 15
17				− 11				− 11				− 12				− 15
16				− 12				− 12				− 12				− 16
15				− 11				− 13				− 12				− 16
14				− 11				− 13				− 13				− 21
13				− 20				− 20				− 21				− 34
12				− 14				− 15				− 15				− 22
11				− 11				− 12				− 13				− 21
10				− 9				− 9				− 11				− 15
9				− 4				− 5				− 6				− 8
8				0				0				− 1				− 3
7				+ 6				+ 6				+ 5				+ 6
6				+ 9				+ 9				+ 9				+ 9
5				+ 10				+ 10				+ 10				+ 11
4				+ 6				+ 6				+ 6				+ 7
3				+ 4				+ 4				+ 4				+ 4
2				+ 4				+ 4				+ 4				+ 3
1				+ 1				+ 1				+ 1				+ 1
Total.				+ 77				+ 20				+ 27				− 54

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Faith, S. Dak., No. 187				Marmarth, N. Dak., No. 188				Towner, N. Dak., No. 189				Crosby, N. Dak., No. 190			
A	2580	+ 2	0	+ 2	2696	+ 2	0	+ 2	1479	+ 2	0	+ 2	1962	+ 2	0	+ 2
B	2580	+ 68	0	+ 68	2700	+ 68	0	+ 68	1479	+ 64	0	+ 64	1968	+ 68	0	+ 68
C	2580	+148	0	+148	2700	+148	0	+148	1479	+124	0	+124	1970	+138	0	+138
D	2600	+221	− 3	+218	2700	+225	− 3	+222	1480	+140	− 2	+138	1970	+182	− 2	+180
E	2600	+198	− 6	+192	2700	+201	− 5	+196	1500	+ 82	− 2	+ 80	2000	+130	− 4	+126
F	2600	+108	− 8	+100	2700	+113	− 8	+105	1500	+ 39	− 4	+ 35	2000	+ 66	− 6	+ 60
G	2500	+ 47	− 9	+ 38	2700	+ 58	− 10	+ 48	1500	+ 17	− 5	+ 12	2000	+ 31	− 7	+ 24
H	2500	+ 28	− 12	+ 16	2700	+ 37	− 13	+ 24	1500	+ 14	− 7	+ 7	2000	+ 16	− 10	+ 6
I	2565	+ 25	− 25	0	2800	+ 26	− 26	0	1500	+ 14	−14	0	1980	+ 20	− 20	0
J	2525	+ 11	− 27	− 16	2800	+ 10	− 26	− 16	1500	0	−16	− 16	1975	+ 8	− 20	− 12
K	2500	+ 7	− 40	− 33	2800	+ 10	− 46	− 36	1500	0	−23	− 23	1970	+ 4	− 30	− 26
L	2417	+ 6	− 59	− 53	3033	+ 6	− 73	− 67	1500	0	−36	− 36	1988	+ 3	− 45	− 42
M	2400	+ 3	−132	−129	3100	+ 8	−188	−180	1629	0	−89	− 89	1993	+ 2	−112	−110
N	2356	0	−117	−117	3000	+ 3	−158	−155	1775	0	−90	− 90	2038	0	−104	−104
O	2589	0	−129	−129	2800	0	−135	−135	1721	0	−95	− 95	2007	0	−100	−100
18				− 29				− 27				− 17				− 20
17				− 29				− 27				− 16				− 20
16				− 28				− 28				− 16				− 21
15				− 30				− 28				− 18				− 22
14				− 31				− 29				− 19				− 22
13				− 49				− 55				− 36				− 46
12				− 31				− 34				− 23				− 30
11				− 27				− 28				− 19				− 24
10				− 18				− 19				− 17				− 19
9				− 7				− 9				− 11				− 15
8				− 1				0				− 4				− 2
7				+ 6				+ 6				+ 4				+ 5
6				+ 9				+ 9				+ 10				+ 10
5				+ 10				+ 10				+ 10				+ 9
4				+ 7				+ 7				+ 7				+ 7
3				+ 4				+ 4				+ 3				+ 3
2				+ 3				+ 3				+ 4				+ 4
1				+ 1				+ 1				+ 1				+ 1
Total.				+ 65				− 20				− 44				+ 8

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Crookston, Minn., No. 191				Poplar, Mont., No. 192				Miles City, Mont., No. 193				Huntley, Mont., No. 194			
A	854	+ 2	0	+ 2	1996	+ 2	0	+ 2	2354	+ 2	0	+ 2	3016	+ 2	0	+ 2
B	854	+62	0	+62	2000	+ 68	0	+ 68	2355	+ 68	0	+ 68	[illegible]	+ 67	0	+ 67
C	854	+92	0	+92	1902	+138	0	+138	2355	+142	0	+142	3019	+154	0	+154
D	850	+69	0	+69	[illegible]	+182	− 2	+180	2357	+207	0	+207	3018	+243	− 3	+240
E	850	+30	− 2	+28	1972	+136	− 4	+132	2375	+169	− 5	+164	2961	+232	− 8	+224
F	850	+12	− 2	+10	1968	+ 66	− 6	+ 60	2400	+ 84	− 7	+ 77	2990	+132	− 10	+122
G	850	+ 6	− 3	+ 3	1978	+ 31	− 7	+ 24	2600	+ 43	− 12	+ 31	3029	+ 72	− 12	+ 60
H	850	+ 4	− 4	0	1985	+ 16	− 10	+ 6	2700	+ 30	− 16	+ 14	3075	+ 46	− 16	+ 30
I	850	+ 8	− 8	0	2019	+ 20	− 20	0	[illegible]	+ 12	− 20	− 8	3120	+ 24	− 27	− 3
J	888	+ 1	− 9	− 8	2074	+ 6	− 22	− 16	2800	+ 9	− 29	− 20	3200	+ 15	− 33	− 18
K	895	0	−14	−14	2105	+ 6	− 32	− 26	2825	+ 6	− 46	− 40	3355	+ 8	− 47	− 39
L	925	0	−23	−23	2204	+ 5	− 53	− 48	2879	+ 6	− 70	− 64	3529	+ 10	− 85	− 75
M	950	0	−56	−56	2221	0	−124	−124	3021	+ 9	−180	−171	3664	+ 10	−218	−208
N	1056	0	−53	−53	2400	0	−120	−120	3156	0	−162	−162	3750	0	−192	−192
O	1229	0	−69	−69	2529	0	−117	−117	3257	0	−156	−156	4575	0	−219	−219
18				−12				− 26				− 31				− 48
17				−12				− 26				− 31				− 49
16				−13				− 26				− 34				− 49
15				−13				− 28				− 36				− 47
14				−14				− 28				− 37				− 44
13				−25				− 57				− 64				− 73
12				−15				− 35				− 38				− 43
11				−14				− 28				− 31				− 32
10				−14				− 20				− 20				− 19
9				− 8				− 12				− 8				− 6
8				− 4				+ 1				+ 3				+ 4
7				+ 4				+ 5				+ 5				+ 6
6				+10				+ 10				+ 10				+ 9
5				+10				+ 9				+ 9				+ 9
4				+ 7				+ 7				+ 7				+ 7
3				+ 3				+ 3				+ 3				+ 4
2				+ 4				+ 4				+ 4				+ 3
1				+ 1				+ 1				+ 1				+ 1
Total				−62				− 87				−204				−222
	Lander, Wyo., No. 195				Faribault, Minn., No. 196				St. James, Minn., No. 197				Edgemont, S. Dak., No. 198			
A	5365	+ 2	0	+ 2	989	+ 2	0	+ 2	1083	+ 2	0	+ 2	3499	+ 2	0	+ 2
B	5370	+ 67	0	+ 67	989	+ 64	0	+ 64	1083	+ 64	0	+ 64	3495	+ 66	0	+ 66
C	5370	+164	− 4	+160	1000	+103	0	+103	1080	+108	0	+108	3472	+157	− 1	+156
D	5372	+306	− 6	+300	988	+ 84	0	+ 84	1072	+ 95	0	+ 95	3475	+256	− 5	+251
E	5376	+391	− 8	+383	1000	+ 42	− 3	+ 39	1075	+ 49	− 2	+ 47	3481	+273	− 8	+265
F	5400	+308	− 20	+288	1025	+ 18	− 3	+ 15	1082	+ 23	− 3	+ 20	3504	+166	− 10	+156
G	5383	+189	− 24	+165	1046	+ 7	− 4	+ 3	1079	+ 9	− 4	+ 5	3543	+ 82	− 12	+ 70
H	5569	+137	− 32	+105	1062	+ 4	− 5	− 1	1069	+ 4	− 4	0	3578	+ 46	− 16	+ 30
I	5915	+ 97	− 43	+ 54	1075	+ 8	− 9	− 1	1088	+ 9	− 9	0	3640	+ 45	− 30	+ 15
J	6125	+ 58	− 66	− 8	1103	0	− 11	− 11	1100	+ 1	− 11	− 10	3725	+ 22	− 40	− 18
K	6470	+ 47	−109	− 62	1112	0	− 18	− 18	1115	0	− 16	− 16	3820	+ 15	− 60	− 45
L	6875	+ 22	−158	−136	1096	0	− 26	− 26	1129	0	− 27	− 27	3838	+ 18	− 94	− 76
M	7279	+ 15	−425	−410	1079	0	− 59	− 59	1086	0	− 60	− 60	4100	+ 14	−245	−231
N	7138	+ 8	−373	−365	1050	0	− 53	− 53	1156	0	− 57	− 57	4288	+ 5	−225	−220
O	7096	0	−341	−341	1021	0	− 56	− 56	1225	0	− 61	− 61	4150	+ 6	−208	−202
18				− 68				− 11				− 12				− 41
17				− 68				− 11				− 12				− 41
16				− 71				− 12				− 12				− 41
15				− 66				− 13				− 12				− 44
14				− 61				− 13				− 14				− 44
13				− 88				− 21				− 23				− 69
12				− 51				− 15				− 15				− 40
11				− 37				− 11				− 13				− 31
10				− 17				− 9				− 11				− 20
9				0				− 5				− 6				− 6
8				+ 8				0				− 1				+ 3
7				+ 7				+ 6				+ 6				+ 6
6				+ 9				+ 8				+ 9				+ 8
5				+ 9				+ 10				+ 10				+ 10
4				+ 8				+ 6				+ 6				+ 7
3				+ 5				+ 4				+ 4				+ 4
2				+ 3				+ 4				+ 4				+ 3
1				+ 1				+ 1				+ 1				+ 1
Total				−275				+ 4				+ 19				−115

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Dawson, Minn., No. 199				Cokato, Minn., No. 200				Wasta, S. Dak., No. 201				Moorcroft, Wyo., No. 202			
A	1059	+ 2	0	+ 2	1059	+ 2	0	+ 2	2317	+ 2	0	+ 2	4249	+ 2	0	+ 2
B	1060	+ 64	0	+ 64	1060	+ 64	0	+ 64	2320	+ 68	0	+ 68	4250	+ 68	0	+ 68
C	1052	+106	0	+106	1052	+106	0	+106	2320	+144	0	+144	4239	+162	− 2	+160
D	1058	+ 93	0	+ 93	1058	+ 90	0	+ 90	2320	+198	0	+198	4236	+282	− 6	+276
E	1050	+ 47	− 2	+ 45	1044	+ 42	− 2	+ 40	2355	+165	− 5	+160	4250	+322	− 8	+314
F	1056	+ 23	− 3	+ 20	1048	+ 23	− 3	+ 20	2400	+ 88	− 6	+ 82	4300	+222	− 10	+212
G	1076	+ 9	− 4	+ 5	1048	+ 9	− 4	+ 5	2400	+ 42	− 8	+ 34	4300	+120	− 12	+108
H	1081	+ 6	− 5	+ 1	1053	+ 5	− 5	0	2400	+ 21	− 11	+ 10	4300	+ 72	− 16	+ 56
I	1094	+ 9	− 9	0	1048	+ 9	− 9	0	2500	+ 18	− 20	− 2	4300	+ 70	− 40	+ 30
J	1097	+ 2	−12	− 10	1041	+ 5	−11	− 6	2500	+ 7	− 24	− 17	4300	+ 40	− 48	− 8
K	1102	0	−18	− 18	1040	+ 2	−16	− 14	2500	+ 5	− 40	− 35	4320	+ 21	− 62	− 41
L	1129	0	−27	− 27	1042	0	−24	− 24	2600	+ 6	− 62	− 56	4521	+ 20	−107	− 87
M	[illegible]	0	−66	− 66	1036	0	−57	− 57	2586	0	−151	−151	4657	+ 19	−272	−253
N	1331	0	−65	− 65	1044	0	−53	− 53	2862	+ 2	−149	−147	4588	+ 5	−240	−235
O	[illegible]	0	−71	− 71	1121	0	−56	− 56	3082	0	−156	−156	4321	0	−214	−214
18				− 13				− 12				− 31				− 44
17				− 12				− 12				− 32				− 44
16				− 13				− 13				− 32				− 41
15				− *14*				− *12*				− *34*				− *45*
14				− *16*				− *14*				− *35*				− *43*
13				− *27*				− *22*				− *55*				− *68*
12				− *18*				− *15*				− *33*				− *39*
11				− *16*				− *13*				− *29*				− *31*
10				− *13*				− *11*				− *18*				− *19*
9				− *7*				− *6*				− *6*				− *6*
8				− *2*				− *1*				+ *1*				+ *2*
7				+ *6*				+ *6*				+ *6*				+ *6*
6				+ *9*				+ *9*				+ *9*				+ *9*
5				+ *10*				+ *10*				+ *10*				+ *10*
4				+ *6*				+ *6*				+ *7*				+ *7*
3				+ *4*				+ *4*				+ *4*				+ *4*
2				+ *4*				+ *4*				+ *3*				+ *3*
1				+ *1*				+ *1*				+ *1*				+ *1*
Total..				− 32				+ 26				−130				+ 50
	Duluth, Minn., No. 203				Osage, Iowa, No. 204				Randolph, Nebr., No. 205				Valentine, Nebr., No. 206			
A	708	+ 2	0	+ 2	1167	+ 2	0	+ 2	1689	+ 2	0	+ 2	2576	+ 2	0	+ 2
B	705	+60	0	+ 60	1170	+ 64	0	+ 64	1684	+ 68	0	+ 68	2576	+ 68	0	+ 68
C	[illegible]	+80	0	+ 80	1170	+112	0	+112	1688	+132	0	+132	2576	+148	0	+148
D	752	+46	0	+ 46	1200	+102	0	+102	1659	+158	− 2	+156	2576	+219	− 3	+216
E	806	+22	− 2	+ 20	[illegible]	+ 56	− 3	+ 53	1700	+107	− 4	+103	2575	+191	− 5	+186
F	[illegible]	+12	− 2	+ 10	1200	+ 23	− 4	+ 19	1700	+ 50	− 5	+ 45	2580	+106	− 8	+ 98
G	871	+ 4	− 3	+ 1	1200	+ 11	− 4	+ 7	1700	+ 18	− 6	+ 12	[illegible]	+ 48	− 12	+ 36
H	900	+ 2	− 5	− 3	1200	+ 7	− 6	+ 1	1700	+ 10	− 8	+ 2	2600	+ 32	− 12	+ 20
I	932	+ 5	− 8	− 3	1180	+ 11	−11	0	1700	+ 12	−12	0	[illegible]	+ 23	− 23	0
J	[illegible]	+ 1	−11	− 10	1150	+ 1	−11	− 10	1631	+ 5	−16	− 11	[illegible]	+ 12	− 28	− 16
K	965	+ 1	−15	− 14	1130	+ 1	−18	− 17	1620	+ 4	−25	− 21	2685	+ 11	− 44	− 33
L	1071	0	−25	− 25	1142	+ 3	−27	− 24	1617	+ 2	−39	− 37	2762	+ 6	− 66	− 60
M	1093	0	−65	− 65	1129	0	−64	− 64	1514	+ 2	−88	− 86	2721	+ 5	−157	−152
N	1162	0	−59	− 59	1056	0	−52	− 52	1512	0	−79	− 79	[illegible]	+ 5	−139	−134
O	1126	0	−67	− 67	968	0	−56	− 56	1539	0	−86	− 86	2496	+ 3	−125	−122
18				− 11				− 10				− 16				− 25
17				− 11				− 10				− 17				− 25
16				− 11				− 10				− 17				− 25
15				− *12*				− *11*				− *20*				− *28*
14				− *11*				− *12*				− *21*				− *28*
13				− *18*				− *20*				− *36*				− *49*
12				− *13*				− *14*				− *22*				− *29*
11				− *11*				− *11*				− *20*				− [illegible]
10				− *10*				− *8*				− *14*				− *17*
9				− *5*				− *4*				− *6*				− *6*
8				− *1*				+ *2*				*0*				*0*
7				+ *5*				+ *6*				+ *7*				+ *6*
6				+ *9*				+ *9*				+ *9*				+ *9*
5				+ *9*				+ *10*				+ *10*				+ *11*
4				+ *6*				+ *6*				+ *7*				+ *7*
3				+ *4*				+ *4*				+ *4*				+ *4*
2				+ *4*				+ *4*				+ *4*				+ *3*
1				+ *1*				+ *1*				+ *1*				+ *1*
Total..				−103				+ 69				+ 53				+ 40

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Wheeling, W. Va., No. 207				Leon, Iowa, No. 208				Laurel, Md., No. 209				Harrisburg, Pa., No. 210			
A	674	+2	0	+2	1127	+2	0	+2	176	+2	0	+2	340	+2	0	+2
B	676	+59	0	+59	1130	+63	0	+63	180	+36	0	+36	344	+52	0	+52
C	676	+78	0	+78	1114	+108	0	+108	168	+16	0	+16	344	+38	0	+38
D	662	+48	0	+48	1067	+96	0	+96	162	+3	0	+3	347	+13	0	+13
E	694	+18	0	+18	1100	+56	−2	+54	173	+1	0	+1	318	+9	0	+9
F	808	+9	−2	+7	1100	+24	−3	+21	[illegible]	+1	−1	0	333	+1	−1	0
G	873	+5	−3	+2	1100	+9	−4	+5	232	0	−1	−1	389	+1	−1	0
H	978	+3	−5	−2	1100	+8	−5	+3	251	0	−1	−1	[illegible]	+1	−2	−1
I	1002	+2	−9	−7	1100	+6	−9	−3	261	0	−2	−2	472	0	−4	−4
J	1059	+1	−12	−11	1100	+2	−11	−9	262	0	−3	−3	542	0	−6	−6
K	1070	+1	−17	−16	1100	+2	−18	−16	270	0	−4	−4	[illegible]	0	−9	−9
L	1112	+2	−27	−25	1082	+2	−26	−24	265	0	−6	−6	[illegible]	0	−14	−14
M	1100	+2	−65	−63	1057	+1	−58	−57	186	0	−11	−11	686	0	−39	−39
N	1013	0	−51	−51	1012	0	−52	−52	262	0	−13	−13	762	0	−38	−38
O	1196	0	−60	−60	943	0	−50	−50	413	0	−21	−21	759	0	−38	−38
18	....	....	....	−13	....	....	....	−9	....	....	....	−7	....	....	....	−10
17	....	....	....	−13	....	....	....	−9	....	....	....	−8	....	....	....	−10
16	....	....	....	−13	....	....	....	−9	....	....	....	−8	....	....	....	−9
15	....	....	....	*−11*	....	....	....	*−10*	....	....	....	*−8*	....	....	....	*−7*
14	....	....	....	*−10*	....	....	....	*−11*	....	....	....	*−4*	....	....	....	*−4*
13	....	....	....	*−13*	....	....	....	*−20*	....	....	....	*+5*	....	....	....	*+3*
12	....	....	....	*−3*	....	....	....	*−13*	....	....	....	*+14*	....	....	....	*+11*
11	....	....	....	*+4*	....	....	....	*−13*	....	....	....	*+18*	....	....	....	*+14*
10	....	....	....	*+8*	....	....	....	*−12*	....	....	....	*+17*	....	....	....	*+14*
9	....	....	....	*+7*	....	....	....	*−6*	....	....	....	*+10*	....	....	....	*+9*
8	....	....	....	*+8*	....	....	....	*0*	....	....	....	*+12*	....	....	....	*+12*
7	....	....	....	*+5*	....	....	....	*+8*	....	....	....	*+6*	....	....	....	*+6*
6	....	....	....	*+6*	....	....	....	*+9*	....	....	....	*+6*	....	....	....	*+6*
5	....	....	....	*+8*	....	....	....	*+11*	....	....	....	*+7*	....	....	....	*+7*
4	....	....	....	*+7*	....	....	....	*+7*	....	....	....	*+6*	....	....	....	*+6*
3	....	....	....	*+6*	....	....	....	*+5*	....	....	....	*+6*	....	....	....	*+6*
2	....	....	....	*+3*	....	....	....	*+3*	....	....	....	*+4*	....	....	....	*+4*
1	....	....	....	*+1*	....	....	....	*+1*	....	....	....	*+1*	....	....	....	*+1*
Total..	....	....	....	−34	....	....	....	+73	....	....	....	+73	....	....	....	+24
	Pittsburg, Pa., No. 211				Rockville, Md., No. 212				Upper Marlboro, Md., No. 213				Fairfax, Va., No. 214			
A	772	+2	0	+2	422	+2	0	+2	38	+2	0	+2	378	+2	0	+2
B	772	+60	0	+60	[illegible]	+56	0	+56	40	+12	0	+12	372	+53	0	+53
C	778	+87	0	+87	429	+50	0	+50	35	+1	0	+1	350	+40	0	+40
D	777	+61	−1	+60	425	+22	0	+22	32	0	0	0	361	+16	0	+16
E	850	+26	−2	+24	418	+8	0	+8	69	0	0	0	359	+10	−1	+9
F	[illegible]	+13	−3	+10	401	+3	−1	+2	90	0	0	0	352	+2	−1	+1
G	925	+4	−3	+1	381	+1	−1	0	[illegible]	0	0	0	358	+1	−1	0
H	[illegible]	+4	−5	−1	385	+1	−2	−1	100	0	−1	−1	345	+1	−2	−1
I	990	+4	−8	−4	372	0	−3	−3	121	0	−1	−1	302	0	−2	−2
J	1031	+2	−11	−9	365	0	−4	−4	124	0	−1	−1	275	0	−3	−3
K	1050	+1	−17	−16	368	0	−6	−6	140	0	−2	−2	262	0	−4	−4
L	1075	0	−26	−26	360	0	−9	−9	[illegible]	0	−2	−2	210	0	−5	−5
M	986	0	−58	−58	246	0	−14	−14	61	0	−3	−3	278	0	−16	−16
N	1200	0	−61	−61	342	0	−17	−17	157	0	−8	−8	370	0	−19	−19
O	1236	0	−62	−62	497	0	−25	−25	310	0	−16	−16	[illegible]	0	−26	−26
18	....	....	....	−11	....	....	....	−7	....	....	....	−6	....	....	....	−7
17	....	....	....	−12	....	....	....	−8	....	....	....	−7	....	....	....	−8
16	....	....	....	−13	....	....	....	−8	....	....	....	−8	....	....	....	−8
15	....	....	....	*−10*	....	....	....	*−8*	....	....	....	*−5*	....	....	....	*−8*
14	....	....	....	*−9*	....	....	....	*−4*	....	....	....	*−1*	....	....	....	*−5*
13	....	....	....	*−11*	....	....	....	*+2*	....	....	....	*+7*	....	....	....	*0*
12	....	....	....	*−1*	....	....	....	*+12*	....	....	....	*+15*	....	....	....	*+12*
11	....	....	....	*+4*	....	....	....	*+17*	....	....	....	*+19*	....	....	....	*+17*
10	....	....	....	*+9*	....	....	....	*+17*	....	....	....	*+17*	....	....	....	*+17*
9	....	....	....	*+7*	....	....	....	*+11*	....	....	....	*+11*	....	....	....	*+11*
8	....	....	....	*+9*	....	....	....	*+12*	....	....	....	*+12*	....	....	....	*+12*
7	....	....	....	*+5*	....	....	....	*+6*	....	....	....	*+6*	....	....	....	*+6*
6	....	....	....	*+6*	....	....	....	*+6*	....	....	....	*+6*	....	....	....	*+6*
5	....	....	....	*+8*	....	....	....	*+7*	....	....	....	*+7*	....	....	....	*+7*
4	....	....	....	*+7*	....	....	....	*+6*	....	....	....	*+6*	....	....	....	*+6*
3	....	....	....	*+6*	....	....	....	*+6*	....	....	....	*+6*	....	....	....	*+6*
2	....	....	....	*+3*	....	....	....	*+4*	....	....	....	*+4*	....	....	....	*+4*
1	....	....	....	*+1*	....	....	....	*+1*	....	....	....	*+1*	....	....	....	*+1*
Total..	....	....	....	+5	....	....	....	+133	....	....	....	+71	....	....	....	+114

Mean elevations and corrections for topography and isostatic compensation, separate zones, for United States stations—Contd.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Crisfield, Md., No. 215				Fredericksburg, Va., No. 216				Dover, Del., No. 217				North Tamarack, Mich., No. 218				Hagerstown, Md., No. 219			
A	4	+1	0	+ 1	52	+ 2	0	+ 2	38	+ 2	0	+ 2	1215	+ 2	0	+ 2	544	+ 2	0	+ 2
B	6	0	0	0	60	+15	0	+15	42	+10	0	+ 10	1215	+ 64	0	+ 64	551	+56	0	+56
C	4	0	0	0	54	+ 2	0	+ 2	40	+ 1	0	+ 1	1212	+114	0	+114	556	+64	0	+64
D	4	0	0	0	47	0	0	0	33	0	0	0	1212	+111	− 1	+110	559	+36	− 1	+35
E	4	0	0	0	47	0	0	0	30	0	0	0	1207	+ 60	− 3	+ 57	559	+17	− 1	+16
F	2	0	0	0	62	0	0	0	31	0	0	0	1198	+ 24	− 4	+ 20	556	+ 4	− 2	+ 2
G	1	0	0	0	98	0	0	0	32	0	0	0	1148	+ 8	− 4	+ 4	560	+ 2	− 2	0
H	1	0	0	0	138	0	− 1	− 1	28	0	0	0	1034	+ 8	− 5	+ 3	556	+ 1	− 3	− 2
I	− 4	0	0	0	154	0	− 1	− 1	29	0	0	0	825	+ 7	− 7	0	547	+ 1	− 5	− 4
J	− 3	0	0	0	169	0	− 2	− 2	28	0	0	0	743	+ 1	− 8	− 7	553	0	− 6	− 6
K	− 2	0	0	0	168	0	− 3	− 3	27	0	− 1	− 1	659	0	−11	− 11	692	0	−11	−11
L	− 1	0	0	0	181	0	− 4	− 4	28	0	− 1	− 1	651	0	−15	− 15	771	0	−18	−18
M	− 3	0	0	0	152	0	− 9	− 9	27	0	− 1	− 1	508	0	−30	− 30	807	0	−47	−47
N	− 6	0	0	0	297	0	−15	−15	34	0	−12	− 12	572	0	−30	− 30	769	0	−40	−40
O	−26	0	+1	+ 1	470	0	−24	−24	92	0	− 5	− 5	591	0	−30	− 30	923	0	−46	−46
18				+ 4				− 5				− 2				− 8				−10
17				+ 5				− 7				− 2				− 10				− 9
16				+ 8				− 7				+ 1				− 10				− 9
15				+ 10				− 7				+ 3				− *9*				− *7*
14				+ 12				− *4*				+ 6				− *9*				− *5*
13				+ *25*				+ *4*				+ *13*				− *16*				− *1*
12				+ *23*				+*14*				+ *16*				− *12*				+ *9*
11				+ *23*				+*17*				+ *19*				− *8*				+*14*
10				+ *18*				+*18*				+ *18*				− *5*				+*15*
9				+ *13*				+*12*				+ *12*				− *2*				+*10*
8				+ *14*				+*12*				+ *14*				+ *3*				+*11*
7				+ *5*				+ *5*				+ *6*				+ *6*				+ *6*
6				+ *6*				+ *6*				+ *6*				+ *8*				+ *6*
5				+ *7*				+ *8*				+ *6*				+ *8*				+ *7*
4				+ *7*				+ *7*				+ *6*				+ *5*				+ *6*
3				+ *6*				+ *6*				+ *6*				+ *4*				+ *6*
2				+ *3*				+ *3*				+ *4*				+ *4*				+ *4*
1				+ *1*				+ *1*				+ *1*				+ *1*				+ *1*
Total.				+192				+43				+126				+201				+55

MEAN ELEVATIONS AND CORRECTIONS FOR TOPOGRAPHY AND ISOSTATIC COMPENSATION FOR SEPARATE ZONES AT SELECTED STATIONS IN EUROPE.

No doubt the Geodetic Survey of Canada will publish the data for the separate zones at stations in that country. The publication of the "Survey of India"[a] does not give the effect of topography and compensation for the separate zones in India.

For the purpose of testing the gravity height formula (see pp. 93 to 96) a number of European stations were reduced for topography and compensation by the Hayford method. The depth of compensation used was 113.7 km., the one on which the reduction tables in Special Publication No. 10 are based.

It is believed that the elevations of the topography and the corrections for the separate zones as given in the following table are of sufficient interest and value for the purposes of further investigations to warrant their publication here. As in the preceding table the corrections given in the following table are in units of the fourth decimal place in dynes. Figures printed in italics represent values interpolated from surrounding stations according to methods explained in Special Publication No. 10, pages 58 to 65, or represent values found to be identical with those for a station very close by.

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[a] See Survey of India, Professional Paper No. 15, "The pendulum operations in India and Burma, 1908 to 1913," by Capt. H. J. Couchman, R. E., Deputy Superintendent, Survey of India, Dehra Dun, India, 1915.

Mean elevations and corrections for topography and isostatic compensation, separate zones, for selected stations in Europe.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Stilfserjoch, Austria (Stelvio Pass), No. 1				Franzenhöhe, Austria, No. 2				Schneekoppe, Germany, No. 3				Alter Bruch, Germany, No. 4			
A	9055	+2	0	+2	7178	+2	0	+2	5266	+2	0	+2	3010	+2	0	+2
B	9050	+70	−4	+66	7180	+68	0	+68	5250	+62	0	+62	3000	+62	0	+62
C	9080	+164	−8	+156	7180	+164	−4	+160	5110	+145	−4	+141	2980	+148	0	+148
D	9100	+342	−12	+330	7440	+313	−6	+307	4700	+262	−6	+256	[illegible]	+231	0	+231
E	8845	+509	−16	+493	7500	+450	−16	+434	4190	+333	−8	+325	2990	+226	−8	+218
F	8990	+509	−28	+481	8140	+373	−26	+347	4050	+266	−10	+256	3140	+126	−10	+116
G	8560	+369	−30	+339	8440	+259	−31	+228	3630	+150	−12	+138	3440	+61	−12	+49
H	8210	+296	−42	+254	8750	+190	−45	+145	3400	+98	−16	+82	3190	+28	−16	+12
I	7430	+251	−66	+185	7840	+164	−71	+93	2910	+80	−28	+52	2540	+35	−22	+13
J	7140	+140	−74	+66	7440	+90	−79	+11	2300	+35	−22	+13	2380	+20	−24	−4
K	7280	+115	−121	−6	7130	+77	−118	−41	2070	+16	−20	−4	[illegible]	+9	−21	−12
L	7300	+74	−174	−100	7220	+52	−172	−120	1860	+11	−38	−27	1700	0	−34	−34
M	5990	+60	−339	−279	5990	+45	−343	−298	1150	+14	−63	−49	1130	+13	−65	−52
N	4220	+23	−222	−199	4220	+23	−223	−200	840	0	−44	−44	860	0	−45	−45
O	2880	0	−140	−140	2880	0	−140	−140	880	0	−51	−51	900	0	−51	−51
18				−27				−27				−8				−8
17				−26				−26				−7				−7
16				−26				−26				−7				−7
15				−26				−26				−8				−8
14				−21				−21				−8				−8
13				−20				−20				−20				−20
12				−4				−4				−12				−12
11				0				0				−8				−8
10				+1				+1				−4				−4
9				0				0				+2				+2
8				+6				+6				+4				+4
7				+4				+4				+4				+4
6				+2				+2				+2				+2
5				0				0				0				0
4				+3				+3				+3				+3
3				+5				+5				+5				+5
2				+5				+5				+5				+5
1				+1				+1				+1				+1
Total				+1525				+873				+1096				+597
	Brocken, Germany, No. 5				Scharfenstein, Germany, No. 6				Naye, Switzerland, No. 7				Villeneuve, Switzerland, No. 8			
A	3740	+2	0	+2	2044	+2	0	+2	[illegible]	+2	0	+2	1230	+2	0	+2
B	3740	+68	0	+68	2020	+61	0	+61	6530	+59	0	+59	1250	+62	0	+62
C	3700	+154	0	+154	1990	+133	0	+133	6430	+157	−4	+153	1250	+111	0	+111
D	3560	+258	−6	+252	2025	+181	0	+181	5920	+257	−6	+251	1200	+109	0	+109
E	3240	+278	−8	+270	2050	+143	−7	+136	5410	+385	−11	+374	1270	+55	0	+55
F	2876	+167	−10	+157	2078	+70	−8	+62	4710	+319	−15	+304	1720	+19	−4	+15
G	2450	+85	−12	+73	2090	+33	−9	+24	4300	+201	−16	+185	2360	−10	−7	−17
H	[illegible]	+49	−16	+33	2100	+18	−16	+2	4100	+140	−22	+118	[illegible]	−14	−16	−30
I	1980	+52	−20	+32	1780	+18	−14	+4	3820	+111	−30	+81	3180	−22	−25	−47
J	1580	+21	−16	+5	1460	−1	−15	−16	3390	+56	−35	+21	[illegible]	−3	−35	−38
K	1170	0	−10	−10	1170	0	−13	−13	3950	+55	−64	−9	3730	−19	−57	−76
L	900	0	−18	−18	900	0	−18	−18	4310	+38	−102	−64	4290	−15	−95	−110
M	660	+5	−35	−30	660	0	−35	−35	4710	+30	−273	−243	4310	−14	−251	−265
N	[illegible]	0	−31	−31	[illegible]	0	−31	−31	5080	+17	−269	−252	5080	+1	−272	−271
O	700	0	−38	−38	700	0	−38	−38	2700	0	−139	−139	2700	0	−139	−139
18				−6				−6				−25				−25
17				−6				−6				−24				−24
16				−7				−7				−25				−25
15				−6				−6				−21				−21
14				−7				−7				−16				−16
13				−13				−13				−18				−18
12				−15				−15				−6				−6
11				−6				−6				+1				+1
10				−3				−3				+1				+1
9				+3				+3				+2				+2
8				+6				+6				+5				+5
7				+4				+4				+5				+5
6				+2				+2				+4				+4
5				0				0				+1				+1
4				+3				+3				+3				+3
3				+5				+5				+4				+4
2				+5				+5				+5				+5
1				+1			+1	+1				+1				+1
Total				+879				+414				+738				−742

Mean elevations and corrections for topography and isostatic compensation, separate zones, for selected stations in Europe—Continued.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation	Elevation in feet	Topography	Compensation	Topography and compensation
	Chaumont, Switzerland, No. 9				Neuenburg, Switzerland (Neuchâtel) No. 10				Gornergrat, Switzerland, No. 11				Riffelberg, Switzerland, No. 12			
A	3340	+ 2	0	+ 2	1600	+ 2	0	+ 2	....	+ 2	0	+ 2	8420	+ 2	0	+ 2
B	3350	+ 58	0	+ 58	1570	+ 61	0	+ 61	....	+ 68	− 4	+ 64	8400	+ 60	0	+ 60
C	3330	+146	0	+146	1540	+122	0	+122	....	+164	− 4	+160	8340	+156	− 4	+152
D	3270	+241	− 5	+236	1530	+148	0	+148	....	+323	− 12	+311	8280	+326	− 9	+317
E	3080	+243	− 8	+235	1640	+ 86	− 2	+ 84	....	+504	− 17	+487	8100	+480	− 16	+464
F	2580	+144	− 8	+136	1810	+ 38	− 4	+ 34	....	+538	− 30	+508	7590	+457	− 23	+434
G	2180	+ 64	− 8	+ 56	1970	+ 16	− 6	+ 10	....	+402	− 31	+371	7980	+336	− 30	+306
H	2060	+ 35	− 15	+ 20	1840	+ 11	− 12	− 1	....	+333	− 44	+289	8660	+269	− 45	+224
I	2310	+ 40	− 22	+ 18	1960	+ 7	− 17	− 10	....	+306	− 94	+212	9940	+216	− 88	+128
J	2540	+ 22	− 30	− 8	2430	+ 5	− 27	− 22	....	+180	−107	+ 73	10 390	+121	−108	+ 13
K	2510	+ 14	− 36	− 22	2480	− 10	− 35	− 45	....	+137	−146	− 9	8730	+105	−146	− 41
L	2500	+ 1	− 61	− 60	2520	+ 2	− 63	− 61	....	+ 80	−177	− 97	7410	+ 65	−175	−110
M	2760	+ 6	−162	−156	2760	+ 2	−162	−160	....	+ 82	−328	−246	5770	+ 63	−339	−276
N	3120	+ 10	−170	−160	3120	+ 4	−166	−162	....	+ 26	−243	−217	4550	+ 25	−244	−219
O	2960	0	−150	−150	2960	0	−150	−150	....	+ 2	−162	−160	2920	0	−142	−142
18	....	....	....	− 24	....	....	....	− *24*	....	....	....	− 32	....	....	....	− *32*
17	....	....	....	− 24	....	....	....	− *24*	....	....	....	− 31	....	....	....	− *31*
16	....	....	....	− 22	....	....	....	− *22*	....	....	....	− 23	....	....	....	− *23*
15	....	....	....	− 20	....	....	....	− *20*	....	....	....	− 17	....	....	....	− *17*
14	....	....	....	− 21	....	....	....	− *21*	....	....	....	− 11	....	....	....	− *11*
13	....	....	....	− 23	....	....	....	− *23*	....	....	....	− 11	....	....	....	− *11*
12	....	....	....	− 6	....	....	....	− *6*	....	....	....	− 6	....	....	....	− *6*
11	....	....	....	+ 4	....	....	....	+ *4*	....	....	....	+ 3	....	....	....	+ *3*
10	....	....	....	+ 2	....	....	....	+ *2*	....	....	....	− 1	....	....	....	− *1*
9	....	....	....	+ 1	....	....	....	+ *1*	....	....	....	+ 3	....	....	....	+ *3*
8	....	....	....	+ 5	....	....	....	+ *5*	....	....	....	+ *8*	....	....	....	+ *8*
7	....	....	....	+ *5*	....	....	....	+ *5*	....	....	....	+ *5*	....	....	....	+ *5*
6	....	....	....	+ *4*	....	....	....	+ *4*	....	....	....	+ *4*	....	....	....	+ *4*
5	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*
4	....	....	....	+ *3*	....	....	....	+ *3*	....	....	....	+ *3*	....	....	....	+ *3*
3	....	....	....	+ *4*	....	....	....	+ *4*	....	....	....	+ *4*	....	....	....	+ *4*
2	....	....	....	+ *5*	....	....	....	+ *5*	....	....	....	+ *5*	....	....	....	+ *5*
1	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*
Total..	....	....	....	+246	....	....	....	−255	....	....	....	+1653	....	....	....	+1217
	Zermatt, Switzerland, No. 13				Belalp, Switzerland, No. 14				Brig, Switzerland, No. 15				Eggishorn, Switzerland, No. 16			
A	5260	+ 2	0	+ 2	6995	+ 2	0	+ 2	2240	+ 2	0	+ 2	7180	+ 2	0	+ 2
B	5260	+ 68	0	+ 68	6900	+ 52	0	+ 52	2250	+ 64	0	+ 64	7130	+ 54	0	+ 54
C	5280	+164	− 4	+160	6770	+142	− 4	+138	2270	+139	0	+139	7010	+145	− 4	+141
D	5480	+296	− 6	+290	6530	+289	− 6	+283	2440	+189	0	+189	6900	+293	− 6	+287
E	6330	+346	− 14	+332	6310	+421	− 13	+408	2680	+149	− 8	+141	6900	+442	− 15	+427
F	7044	+233	− 21	+212	6530	+388	− 20	+368	3070	+ 72	− 10	+ 62	6590	+371	− 20	+351
G	7910	+116	− 28	+ 88	6710	+262	− 25	+237	4030	+ 17	− 14	+ 3	6070	+247	− 20	+227
H	8700	+ 60	− 43	+ 17	6810	+175	− 32	+143	5100	− 24	− 25	− 49	6240	+190	− 31	+159
I	9380	+ 25	− 81	− 56	6990	+137	− 60	+ 77	6250	− 56	− 52	−108	7120	+162	− 62	+100
J	10 500	+ 6	−111	−105	6990	+ 86	− 74	+ 12	6900	− 34	− 75	−109	8030	+ 84	− 86	− 2
K	8860	+ 25	−149	−124	7480	+ 68	−125	− 57	7170	− 33	−119	−152	8140	+ 68	−136	− 68
L	7720	+ 19	−182	−163	6900	+ 51	−162	−111	7290	− 29	−169	−198	6210	+ 45	−140	− 95
M	6220	+ 22	−343	−321	5820	+ 40	−340	−300	5860	− 15	−343	−358	5370	+ 45	−317	−272
N	4770	+ 9	−246	−237	4250	+ 24	−230	−206	4250	+ 8	−226	−218	4060	+ 20	−218	−198
O	2920	0	−142	−142	3210	0	−157	−157	3210	0	−157	−157	3330	0	−159	−159
18	....	....	....	− *32*	....	....	....	− *26*	....	....	....	− 26	....	....	....	− *26*
17	....	....	....	− *31*	....	....	....	− *25*	....	....	....	− 25	....	....	....	− *25*
16	....	....	....	− *23*	....	....	....	− *22*	....	....	....	− 22	....	....	....	− *22*
15	....	....	....	− *17*	....	....	....	− *20*	....	....	....	− 20	....	....	....	− *20*
14	....	....	....	− *11*	....	....	....	− *14*	....	....	....	− 14	....	....	....	− *14*
13	....	....	....	− *11*	....	....	....	− *16*	....	....	....	− 16	....	....	....	− *16*
12	....	....	....	− *6*	....	....	....	− *7*	....	....	....	− 7	....	....	....	− *7*
11	....	....	....	+ *3*	....	....	....	+ *1*	....	....	....	+ 1	....	....	....	+ *1*
10	....	....	....	− *1*	....	....	....	+ *1*	....	....	....	+ 1	....	....	....	+ *1*
9	....	....	....	+ *3*	....	....	....	+ *1*	....	....	....	+ 1	....	....	....	+ *1*
8	....	....	....	+ *8*	....	....	....	+ *6*	....	....	....	+ 6	....	....	....	+ *6*
7	....	....	....	+ *5*	....	....	....	+ *5*	....	....	....	+ *5*	....	....	....	+ *5*
6	....	....	....	+ *4*	....	....	....	+ *4*	....	....	....	+ *4*	....	....	....	+ *4*
5	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*
4	....	....	....	+ *3*	....	....	....	+ *3*	....	....	....	+ *3*	....	....	....	+ *3*
3	....	....	....	+ *4*	....	....	....	+ *4*	....	....	....	+ *4*	....	....	....	+ *4*
2	....	....	....	+ *5*	....	....	....	+ *5*	....	....	....	+ *5*	....	....	....	+ *5*
1	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*	....	....	....	+ *1*
Total..	....	....	....	− 74	....	....	....	+791	....	....	....	−847	....	....	....	+856

Mean elevations and corrections for topography and isostatic compensation, separate zones, for selected stations in Europe—Con.

Zone	Elevation in feet	Topography	Compensation	Topography and compensation
	Fiesch, Switzerland, No. 17.			
A	3440	+ 2	0	+ 2
B	3510	+ 50	0	+ 50
C	3510	+153	0	+153
D	3640	+253	− 6	+247
E	4020	+248	− 8	+240
F	4640	+132	− 13	+119
G	5220	+ 55	− 18	+ 37
H	6070	+ 12	− 32	− 20
I	6850	− 8	− 58	− 66
J	8020	− 16	− 85	−101
K	7920	− 20	−132	−152
L	6370	+ 5	−149	−144
M	5370	− 4	−318	−322
N	4060	+ 7	−221	−214
O	3330	0	−159	−159
18	....	....	....	− *26*
17	....	....	....	− *25*
16	....	....	....	− *22*
15	....	....	....	− *20*
14	....	....	....	− *14*
13	....	....	....	− *16*
12	....	....	....	− *7*
11	....	....	....	+ *1*
10	....	....	....	+ *1*
9	....	....	....	+ *1*
8	....	....	....	+ *6*
7	....	....	....	+ *5*
6	....	....	....	+ *4*
5	....	....	....	+ *1*
4	....	....	....	+ *3*
3	....	....	....	+ *4*
2	....	....	....	+ *5*
1	....	....	....	+ *1*
Total....	....	....	....	−428

PRINCIPAL FACTS FOR 219 STATIONS IN THE UNITED STATES.

The names of the observers, with the dates on which the observations were made, are given with the summaries of observations at the gravity stations, on pages 144 to 176.

Since the preceding report on gravity investigations (Special Publication No. 12, 1912) 94 stations have been established in the United States. At all of these stations the Mendenhall half-second pendulums were used. A description of the apparatus and of the method of determining the period of the pendulums is given in Appendix 5, Report for 1901, by G. R. Putnam, and in Appendix 1, Report for 1894. Since 1909 the flexure of the pendulum case and pier has been determined by means of the interferometer, designed and made by E. G. Fischer, chief of the instrument section of the United States Coast and Geodetic Survey. This instrument and its use are described by W. H. Burger in Appendix 6 of the Report for 1910.

Previous to 1913 the chronometer rates were determined by local observations on the stars with a portable astronomical transit. Since that date the rates of the chronometers have been determined from time transmitted by noon signals sent from the Naval Observatory at Washington over the wires of the Western Union Telegraph Company and the Postal Telegraph Company. As only the rates were required, and not the chronometer corrections, the effect of transmission time was eliminated, as it proved to be nearly the same for each day at any one station. Before making use of the Naval Observatory time it was carefully tested at the base station at the Survey office. It was also tested on the field by reoccupying four stations. The tests proved entirely satisfactory, as the results agreed closely with those previously obtained when the chronometers were rated by star observations.

An improvement was made by having a thick felt-and-leather cover for the pendulum case. This made the temperature in the case much more uniform, and no doubt added to the accuracy of the results. This covering is shown in figures 3 and 4.

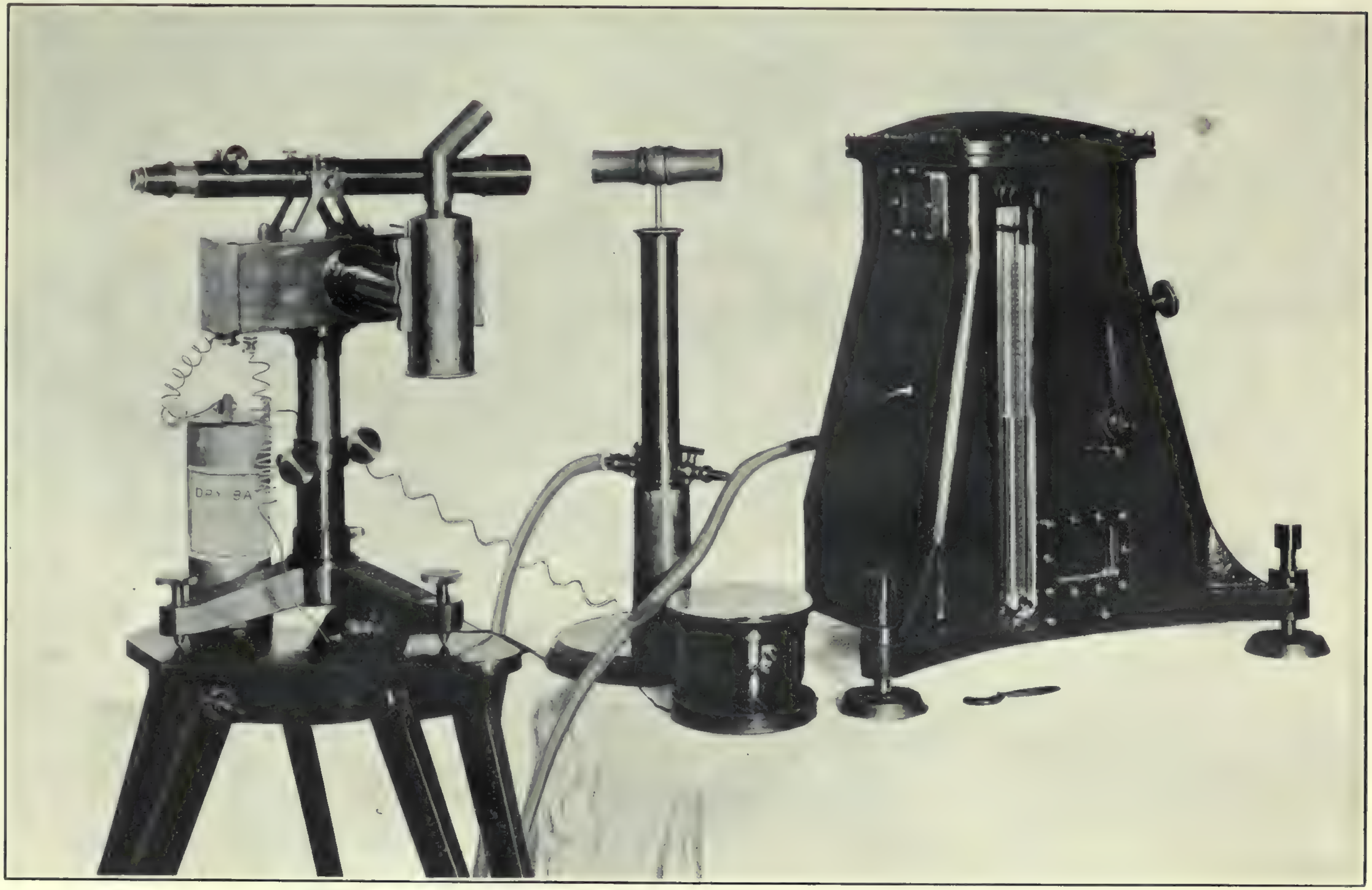

FIG. 1.—ORIGINAL FORM OF THE MENDENHALL HALF-SECOND PENDULUM APPARATUS.

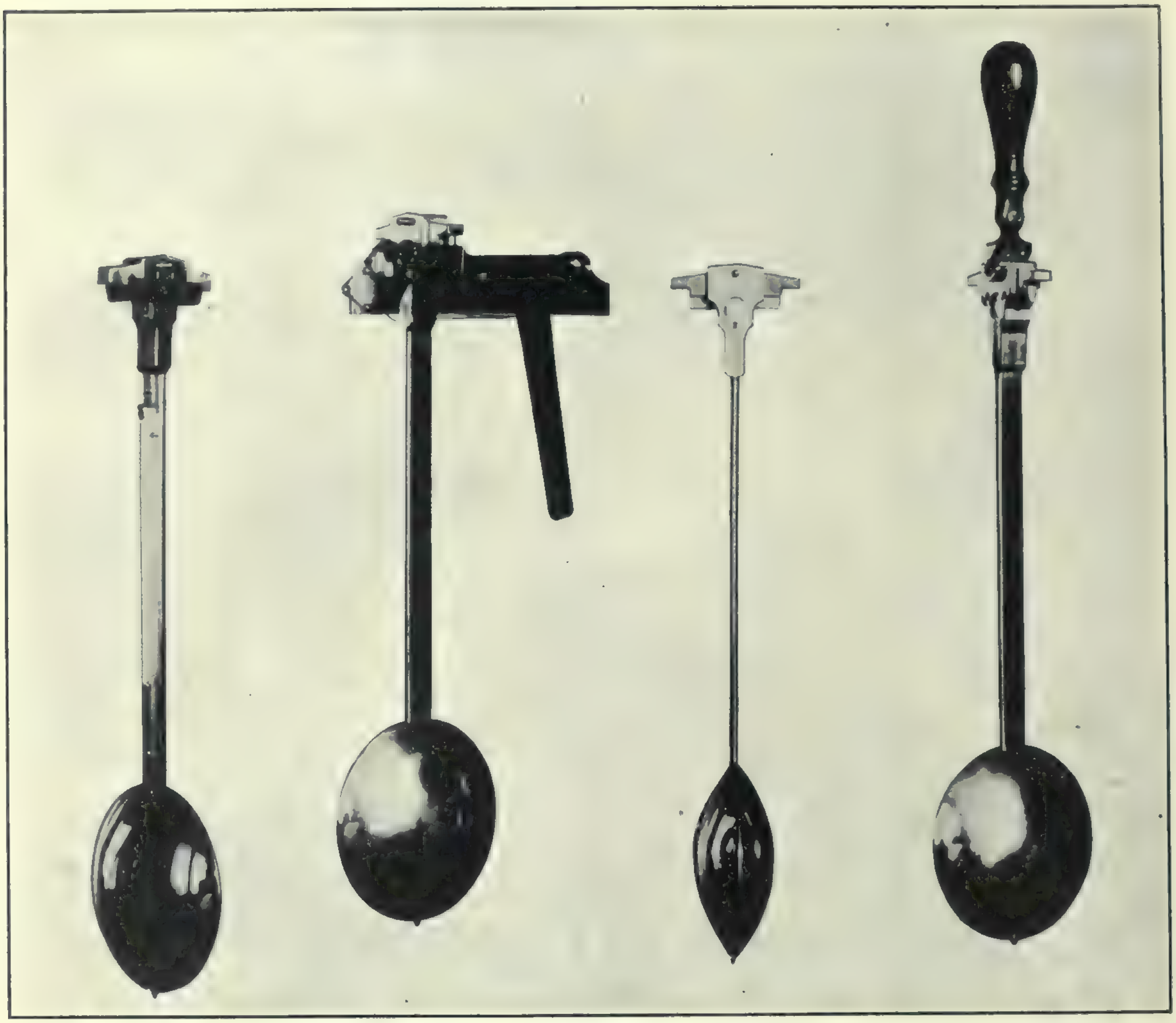

FIG. 2.—MENDENHALL HALF-SECOND PENDULUMS AS ORIGINALLY CONSTRUCTED WITH KNIFE-EDGE ATTACHED TO HEAD OF PENDULUM AND DIVIDED INTO TWO PARTS.

FIG. 3.—PRESENT PENDULUM APPARATUS SHOWING VERTICAL FORM OF TELESCOPE, ELECTRIC ILLUMINATION FOR OBSERVING SLIT, AND THE FELT-AND-LEATHER CASE FOR CONTROLLING THE TEMPERATURE.

FIG. 4.—FELT-AND-LEATHER CASE FOR TEMPERATURE CONTROL PARTLY REMOVED FROM PENDULUM RECEIVER.

Another improvement was made by changing the telescope of the flash apparatus to the vertical instead of the horizontal position, as formerly, by the use of a prism. (See fig. 3.) With the telescope vertical the observer is able to work with greater comfort, as the case is always mounted only a few inches above the floor of the room in which observations are made.

During the work at the 94 recent stations, only one of the six pendulums used gave trouble. This was pendulum No. B4. The trouble was eliminated by strengthening the connection between the stem and bob by an additional rivet.

In most cases three pendulums were used at each station. Each pendulum was swung for three periods of approximately eight hours each between two consecutive noon time-signals. The exceptions to this general rule occurred when in Mr. Powell's work on the field in the spring of 1915 pendulum No. B4 showed great irregularities. He continued that season with the other two pendulums of the set. He swung one of the pendulums for two days, or six periods of eight hours each, and the other for three such periods, making nine periods in all, the number ordinarily obtained when using three pendulums.

The pendulums were standardized at the Coast and Geodetic Survey office at Washington between each two seasons. The results of the standardizations are given on page 141.

Complete computations have been made for 219 gravity stations in the United States by three methods of reduction and the results are shown in the following table.

The theoretical value in dynes of gravity at sea level was computed by Helmert's formula of 1901 for the Potsdam system, namely:

$$\gamma_0 = 978.030\ (1 + 0.005302 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$

The correction in dynes for elevation of station was computed by the formula $-0.0003086H$, in which H is the elevation in meters. It should be carefully noted that with the sign as given this is the reduction from sea level to the station, a correction to the theoretical value not to the observed value. This correction takes account of the increased distance of the station from the attracting mass, as if the station were in the air and there were no irregularities in the earth's surface (or topography).

The corrections for topography and compensation by the Hayford method were computed with the reduction tables shown on pages 30 to 47 of Special Publication No. 10, and the resultant effect was applied as a correction to the theoretical value at sea level.

These corrections are often applied to the observed values and the results are compared with the theoretical value of gravity at sea level. The method employed in this publication and in Special Publications Nos. 10 and 12 appears to be the more logical one.

The computed value of gravity, g_c, at the station is the theoretical value of gravity at sea level, γ_0, corrected for elevation and for topography and compensation. It is therefore directly comparable with g, the observed value of gravity at the station. The column $g - g_c$, therefore, represents the departures of the observed values from computed values based upon the Helmert formula of 1901, upon the usual reduction for elevation, and upon the Hayford reductions that take account of topography and compensation.

All observed values, g, in the following table depend upon relative determinations with the half-second pendulums and are based on 980.112 dynes as the value of gravity at the Coast and Geodetic Survey office at Washington. This value depends upon the absolute determination of the value of gravity at Potsdam,[a] Germany, and upon the adjustment of the net of base stations throughout the world. (See pp. 25 and 244 of third volume, by Dr. E. Borrass in 1911, of the Report of the Sixteenth General Conference of the International Geodetic Association at London and Cambridge in 1909.) The observations used in the adjustment to connect Washington with stations in Europe were made by G. R. Putnam in 1900.[b]

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[a] Bestimmung der absoluten Grösse der Schwerkraft zu Potsdam mit Reversionspendeln, von Prof. F. Kühnen und Prof. Dr. Ph. Furtwängler, p. 380.

[b] Determination of Relative Value of Gravity in Europe and the United States in 1900, G. R. Putnam, Appendix 5, Coast and Geodetic Survey Report, 1901, pp. 354–355.

Principal facts for 219 gravity stations in the United States.

Number and name of station	Latitude		Longitude		Elevation	Theo[redacted] gravity	Correction for elevation	Correction for topography and compen[redacted]	Computed gravity at station	Observed gravity at station	$g-g_c$
	ϕ		λ		H	γ_0			g_c	g	
	°	′	°	′	*Meters*	*Dynes.*	*Dynes.*	*Dynes.*	*Dynes.*	*Dynes.*	*Dynes.*
1. Key West, Fla	24	33.6	81	48.4	1	[redacted]	0.000	+0.035	978.957	978.970	+0.013
2. West Palm Beach, Fla	26	42.8	80	02.8	2	979.073	− .001	+ .031	[redacted]	[redacted]	+ .026
3. Punta Gorda, Fla	26	56.2	82	03	1	[redacted]	.000	+ .020	[redacted]	979.127	+ .018
4. Apalachicola, Fla	29	43.5	84	58.8	[redacted]	979.300	− .001	+ .015	979.314	979.322	+ .008
5. New Orleans, La	29	57.0	90	04.2	2	979.317	− .001	+ .013	[redacted]	979.324	− .005
6. Rayville, La	32	28	91	45	26	979.519	− .008	+ .008	979.519	[redacted]	+ .024
7. Galveston, Tex	29	18.2	94	47.5	3	979.267	− .001	+ .007	979.273	979.272	− .001
8. Point Isabel, Tex	26	04.7	97	12.4	[redacted]	979.028	− .002	+ .015	979.041	979.076	+ .035
9. Laredo, Tex	27	30.5	99	31.2	129	979.131	− .040	+ .003	[redacted]	[redacted]	− .012
10. Austin, Tex. (capitol)	30	16.5	97	44.3	170	[redacted]	− .052	− .003	[redacted]	[redacted]	.000
11. Austin, Tex. (university)	30	17.2	97	44.2	189	979.344	− .058	− .001	979.285	979.283	− .002
12. McAlester, Okla	34	56.2	95	46.2	240	979.725	− .074	+ .001	979.652	[redacted]	− .019
13. Little Rock, Ark	34	45.0	92	16.4	89	979.709	− .027	+ .001	979.683	979.721	+ .038
14. Columbia, Tenn	35	36.7	87	02.5	207	979.783	− .064	+ .006	979.725	979.759	+ .034
15. Atlanta, Ga	33	45.0	84	23.3	324	979.625	− .100	+ .014	979.539	979.524	− .015
16. McCormick, S. C	33	54.8	82	18.0	163	979.639	− .050	+ .012	979.601	979.624	+ .023
17. Charleston, S. C	32	47.2	79	56.0	6	979.545	− .002	+ .016	979.559	979.546	− .013
18. Beaufort, N. C	34	43.1	76	39.8	1	979.706	.000	+ .036	979.742	979.729	− .013
19. Charlottesville, Va	38	02.0	78	30.3	166	979.992	− .051	+ .002	979.943	979.938	− .005
20. Deer Park, Md	39	25.0	79	19.8	770	980.114	− .238	+ .041	979.917	[redacted]	+ .018
21. Washington, D. C. (Coast and Geodetic Survey Office)	38	53.2	77	00.5	14	980.067	− .004	+ .004	[redacted]	980.112	+ .045
22. Washington, D. C. (Smithsonian Institution)	38	53.3	77	01.5	10	980.067	− .003	+ .003	980.067	980.114	+ .047
23. Baltimore, Md	39	17.8	76	37.3	30	980.103	− .009	+ .006	980.100	980.097	− .003
24. Philadelphia, Pa	39	57.1	75	11.7	16	980.162	− .005	+ .009	980.166	980.196	+ .030
25. Princeton, N. J	40	21.0	74	39.5	64	980.196	− .020	+ .013	980.189	[redacted]	− .011
26. Hoboken, N. J	40	44	74	02	11	[redacted]	− .003	+ .008	980.237	[redacted]	+ .032
27. New York, N. Y	40	48.5	73	57.7	38	980.238	− .012	+ .011	980.237	[redacted]	+ .030
28. Worcester, Mass	42	16.5	71	48.5	170	980.370	− .052	+ .018	980.336	980.324	− .012
29. Boston, Mass	42	21.6	71	03.8	22	980.377	− .007	+ .013	980.383	980.396	+ .013
30. Cambridge, Mass	42	22.8	71	07.8	14	[redacted]	− .004	+ .010	[redacted]	[redacted]	+ .013
31. Calais, Me	45	11.2	67	16.9	38	980.633	− .012	+ .010	[redacted]	980.631	[redacted]
32. Ithaca, N. Y	42	27.1	76	29.0	247	980.386	− .076	+ .005	980.315	980.300	− .015
33. Cleveland, Ohio	41	30.4	81	36.6	210	980.301	− .065	.000	980.236	980.241	+ .005
34. Cincinnati, Ohio	39	08.3	84	25.3	245	980.089	− .076	+ .002	980.015	[redacted]	− .011
35. Terre Haute, Ind	39	28.7	87	23.8	151	980.119	− .047	+ .001	980.073	980.072	− .001
36. Chicago, Ill	41	47.4	87	36.1	182	[redacted]	− .056	+ .007	980.277	[redacted]	+ .001
37. Madison, Wis	43	04.6	89	24.0	270	980.442	− .083	+ .003	980.362	[redacted]	+ .003
38. St. Louis, Mo	38	38.0	90	12.2	154	980.045	− .048	+ .001	[redacted]	[redacted]	+ .003
39. Kansas City, Mo	39	05.8	94	35.4	278	980.085	− .086	− .001	[redacted]	[redacted]	− .008
40. Ellsworth, Kans	38	43.7	98	13.5	469	980.053	− .145	− .004	979.904	[redacted]	+ .022
41. Wallace, Kans	38	54.7	101	35.4	1005	980.069	− .310	.000	979.759	979.755	− .004
42. Colorado Springs, Colo	38	50.7	104	49.0	1841	980.064	− .568	− .007	[redacted]	[redacted]	+ .001
43. Pikes Peak, Colo	38	50.3	105	02.0	4293	[redacted]	−1.325	+ .187	[redacted]	978.954	+ .029
44. Denver, Colo	39	40.6	104	56.9	1638	980.137	− .505	− .015	979.617	[redacted]	− .008
45. Gunnison, Colo	38	32.6	106	56.0	2340	980.037	− .722	− .001	979.314	[redacted]	+ .028
46. Grand Junction, Colo	39	04.2	108	33.9	1398	980.083	− .431	− .051	[redacted]	[redacted]	+ .032
47. Green River, Utah	38	59.4	110	09.9	1243	980.076	− .384	− .043	[redacted]	979.636	− .013
48. Pleasant Valley Junction, Utah	39	50.8	111	00.8	2191	980.152	− .676	+ .024	979.500	979.512	+ .012
49. Salt Lake City, Utah	40	46.1	111	53.8	1322	980.234	− .408	− .041	979.785	979.803	+ .018
50. Grand Canyon, Wyo	44	43.3	110	29.7	2386	980.591	− .736	+ .038	[redacted]	979.899	+ .006
51. Norris Geyser Basin, Wyo	44	44.2	110	42.0	[redacted]	[redacted]	− .702	+ .031	979.921	979.950	+ .029
52. Lower Geyser Basin, Wyo	44	33.4	110	48.1	2200	980.576	− .679	+ .028	979.925	979.932	+ .007
53. Seattle, Wash. (university)	47	39.6	122	18.3	[redacted]	980.856	− .018	− .020	[redacted]	[redacted]	− .085
54. San Francisco, Cal	37	47.5	122	25.7	114	979.970	− .035	+ .045	[redacted]	[redacted]	− .015
55. Mount Hamilton, Cal	37	20.4	121	38.6	1282	979.931	− .396	+ .120	979.655	[redacted]	+ .005
56. Seattle, Wash. (high school)	47	36.5	122	19.8	74	980.851	− .023	− .018	980.810	[redacted]	− .085
57. Iron River, Mich	46	05.4	88	38.4	458	980.714	− .141	+ .014	980.587	[redacted]	+ .046
58. Ely, Minn	47	48.6	92	01.0	448	980.870	− .138	+ .008	[redacted]	980.771	+ .031
59. Pembina, N. Dak	48	58.1	97	14.9	243	980.974	− .075	− .009	[redacted]	980.917	+ .027
60. Mitchell, S. Dak	43	41.8	98	01.8	408	980.498	− .126	− .006	[redacted]	980.375	+ .009
61. Sweetwater, Tex	32	28.4	100	24.1	655	979.519	− .202	+ .009	[redacted]	979.305	− .021
62. Kerrville, Tex	30	01.3	99	07.6	498	979.323	− .154	+ .013	[redacted]	979.221	+ .039
63. El Paso, Tex	31	46.3	106	29.0	1146	[redacted]	− .354	+ .001	979.109	979.124	+ .015
64. Nogales, Ariz	31	21.3	110	56.6	1181	[redacted]	− .364	+ .038	979.103	[redacted]	− .042
65. Yuma, Ariz	32	43.3	114	37.0	54	979.539	− .017	− .010	979.512	[redacted]	+ .017
66. Compton, Cal	33	53.4	118	13.2	[redacted]	[redacted]	− .006	.000	[redacted]	[redacted]	− .042
67. Goldfield, Nev	37	42.2	117	14.5	1716	[redacted]	− .529	+ .027	979.461	[redacted]	− .005
68. Yavapai, Ariz	36	03.9	112	07.1	2179	979.821	− .672	+ .034	[redacted]	[redacted]	+ .009
69. Grand Canyon, Ariz	36	05.3	112	06.8	849	[redacted]	− .262	− .096	[redacted]	[redacted]	− .002
70. Gallup, N. Mex	35	31.8	108	44.2	[redacted]	979.775	− .614	+ .014	979.175	979.170	− .005
71. Las Vegas, N. Mex	35	35.8	105	12.1	1960	979.781	− .605	+ .017	[redacted]	[redacted]	+ .011
72. Shamrock, Tex	35	12.8	100	11.4	708	979.748	− .218	+ .007	979.537	979.577	+ .040
73. Denison, Tex	33	45.3	96	32.8	230	979.625	− .071	− .001	979.553	[redacted]	+ .013
74. Minneapolis, Minn	44	58.7	93	13.9	256	[redacted]	− .079	− .005	980.530	[redacted]	+ .067
75. Lead, S. Dak	44	21.1	103	45.6	1590	980.557	− .491	+ .044	980.110	[redacted]	+ .060

Principal facts for 219 gravity stations in the United States—Continued.

Number and name of station	Latitude φ		Longitude λ		Elevation H	Theoretical gravity γ₀	Correction for elevation	Correction for topography and compensation	Computed gravity at station g₀	Observed gravity at station g	g−g₀
	°	′	°	′	*Meters*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*
76. Bismarck, N. Dak.	46	48.5	100	47.0	516	980.779	−0.159	−0.005	980.615	980.625	+0.010
77. Hinsdale, Mont.	48	23.8	107	05.3	661	980.923	− .204	− .017	980.702	980.739	+ .037
78. Sandpoint, Idaho	48	16.4	116	33.3	637	980.911	− .197	− .044	980.670	980.680	+ .010
79. Boise, Idaho	43	37.2	116	12.3	821	980.491	− .253	− .042	980.196	980.212	+ .016
80. Astoria, Oreg.	46	11.3	123	50.2	1	980.724	.000	+ .008	980.732	980.727	− .005
81. Sisson, Cal.	41	18.3	122	19.6	1048	980.282	− .323	+ .015	979.974	979.972	− .002
82. Rock Springs, Wyo.	41	35.1	[illegible]	13.2	1910	980.308	− .589	− .001	979.718	979.739	+ .021
83. Paxton, Nebr.	41	07.4	101	21.3	932	980.266	− .288	+ .002	979.980	979.982	+ .002
84. Washington, D. C. (Bureau of Standards)	38	56.3	77	04.0	103	980.070	− .032	+ .012	980.050	980.095	+ .045
85. North Hero, Vt.	44	49.1	73	17.5	35	980.599	− .011	− .009	980.579	980.588	+ .009
86. Lake Placid, N. Y.	44	17.5	73	59.1	571	980.551	− .176	+ .032	980.407	980.421	+ .014
87. Potsdam, N. Y.	44	40.1	74	58.8	130	980.586	− .040	− .004	980.542	980.571	+ .029
88. Wilson, N. Y.	43	18.4	78	49.6	87	980.462	− .027	− .002	980.433	980.431	− .002
89. Alpena, Mich.	45	03.8	83	27.0	178	980.622	− .055	.000	980.567	980.555	− .012
90. Virginia Beach, Va.	36	50.5	75	58.4	4	979.888	− .001	+ .025	979.912	979.872	− .040
91. Durham, N. C.	36	00.2	78	53.5	[illegible]	979.816	− .039	+ .014	979.791	979.835	+ .044
92. Fernandina, Fla.	30	40.2	81	27.7	3	979.374	− .001	+ .017	979.390	979.408	+ .018
93. Wilmer, Ala.	30	49.2	88	20.5	69	979.386	− .021	+ .018	979.383	979.347	− .036
94. Aliceville, Ala.	33	07.6	88	10.8	61	979.572	− .019	+ .008	979.561	979.552	− .009
95. New Madrid, Mo.	36	35.5	89	31.6	79	979.867	− .024	+ .001	979.844	979.853	+ .009
96. Mena, Ark.	34	35.2	94	14.6	368	979.695	− .114	+ .015	979.596	979.552	− .044
97. Nacogdoches, Tex.	31	36.2	94	37.8	92	979.448	− .028	+ .008	979.427	979.424	− .004
98. Alpine, Tex.	30	21.5	103	39.7	1359	979.349	− .420	+ .033	978.962	978.991	+ .029
99. Farwell, Tex.	34	23.2	103	01.8	1259	979.678	− .388	+ .011	979.301	979.293	− .008
100. Guymon, Okla.	36	40.7	101	28.7	949	979.874	− .293	− .001	979.580	979.571	− .009
101. Helenwood, Tenn.	36	25.9	84	32.6	422	979.853	− .130	+ .015	979.738	979.786	+ .048
102. Cloudland, Tenn.	36	06.2	82	07.9	1890	979.824	− .583	+ .130	979.371	979.383	+ .012
103. Hughes, Tenn.	36	08.5	82	07.2	994	979.827	− .306	+ .053	979.574	979.553	− .021
104. Charleston, W. Va.	38	20.9	81	37.7	184	980.019	− .057	− .010	979.952	979.936	− .016
105. State College, Pa.	40	47.9	77	51.8	358	980.237	− .110	+ .010	980.137	980.124	− .013
106. Fort Kent, Me.	47	14.9	68	36.0	160	980.818	− .049	+ .001	980.770	980.765	− .005
107. Prentice, Wis.	45	32.6	90	17.8	469	980.665	− .145	+ .010	980.530	980.562	+ .032
108. Fergus Falls, Minn.	46	17.2	96	05.0	366	980.732	− .113	+ .001	980.620	980.622	+ .002
109. Sheridan, Wyo.	44	48.0	106	58.7	1150	980.598	− .355	− .031	980.212	980.252	+ .040
110. Boulder, Mont.	[illegible]	14.2	112	07.3	1493	980.727	− .461	− .007	980.259	980.252	− .007
111. Skykomish, Wash.	47	42.4	121	22.3	[illegible]	980.860	− .086	− .047	980.727	980.707	− .020
112. Olympia, Wash.	47	03.4	122	52.7	19	980.802	− .006	− .012	980.784	980.825	+ .041
113. Heppner, Oreg.	45	21.4	119	33.2	598	980.648	− .185	− .007	980.456	980.437	− .019
114. Truckee, Cal.	39	19.6	120	11.4	1805	980.105	− .557	+ .057	979.605	979.585	− .020
115. Winnemucca, Nev.	40	58.4	117	43.8	1311	980.253	− .404	− .004	979.845	979.844	− .001
116. Ely, Nev.	39	14.9	114	53.4	1962	980.099	− .605	+ .020	979.514	979.501	− .013
117. Guernsey, Wyo.	42	16.1	104	44.0	1322	980.369	− .408	− .016	979.945	979.989	+ .044
118. Pierre, S. Dak.	44	21.9	100	20.8	454	980.558	− .140	− .013	980.405	980.427	+ .022
119. Fort Dodge, Iowa	42	30.8	94	11.4	340	980.391	− .105	+ .002	980.288	980.311	+ .023
120. Keithsburg, Ill.	41	06.4	90	57	167	980.265	− .051	− .003	980.211	980.211	000
121. Grand Rapids, Mich.	42	58.0	85	40.8	236	980.432	− .073	+ .003	980.362	980.372	+ .010
122. Angola, Ind.	41	37.7	85	00.6	318	980.312	− .098	+ .011	980.225	980.244	+ .019
123. Albany, N. Y.	42	39.1	73	46.1	61	980.404	− .019	− .006	980.379	980.344	− .035
124. Port Jervis, N. Y.	41	22.4	74	41.1	141	980.288	− .044	+ .003	980.247	980.222	− .025
125. Atlantic City, N. J.	39	21.9	74	25.0	3	980.110	− .001	+ .018	980.127	980.112	− .015
126. Bridgehampton, N. Y.	40	56.0	72	18.4	10	980.249	− .003	+ .020	980.266	980.252	− .014
127. Chatham, Mass.	41	40.7	69	57.3	2	980.316	− .001	+ .024	980.339	980.333	− .006
128. Rockland, Me.	44	06.3	69	[illegible]	9	980.535	− .003	+ .011	980.543	980.536	− .007
129. Lancaster, N. H.	44	29.5	71	34.3	261	980.570	− .081	+ .007	980.496	980.486	− .010
130. Whitehall, N. Y.	43	33.0	73	23.8	38	980.484	− .012	− .012	980.460	980.429	− .031
131. Little Falls, N. Y.	43	02.7	74	51.2	137	980.439	− .042	− .007	980.390	980.374	− .016
132. Watertown, N. Y.	43	58.3	75	54.6	147	980.522	− .045	+ .001	980.478	980.461	− .017
133. Southport, N. Y.	42	03.7	76	48.6	266	980.351	− .082	+ .004	980.273	980.251	− .022
134. Erie, Pa.	42	07.8	80	04.8	198	980.357	− .061	+ .001	980.297	980.278	− .019
135. Parkersburg, W. Va.	39	16.0	81	33.7	185	980.101	− .057	− .006	980.038	980.022	− .016
136. Columbus, Ohio	39	57.8	82	59.4	231	980.163	− .071	+ .001	980.093	980.089	− .004
137. Indianapolis, Ind.	39	45.9	86	08.8	217	980.145	− .067	+ .003	980.081	980.090	+ .009
138. Springfield, Ill.	39	47.7	89	39.5	183	980.148	− .056	+ .005	980.097	980.089	− .008
139. Lebanon, Mo.	37	41.1	92	39.1	385	979.962	− .119	+ .012	979.855	979.874	+ .019
140. Joplin, Mo.	37	05.4	94	30.8	303	979.910	− .094	+ .001	979.817	979.841	+ .024
141. Fort Smith, Ark.	35	23.3	94	25.5	135	979.763	− .042	− .007	979.714	979.706	− .008
142. Texarkana, Ark.	33	25.5	94	02.5	[illegible]	979.598	− .031	+ .001	979.568	979.587	+ .019
143. Hot Springs, Ark.	34	30.1	93	03.6	190	979.688	− .059	+ .004	979.633	979.659	+ .026
144. Alexandria, La.	31	18.6	92	26.0	[illegible]	979.425	− .007	+ .009	979.427	979.429	+ .002
145. Laurel, Miss.	31	41.5	89	02.3	77	979.456	− .024	+ .011	979.443	979.465	+ .022
146. Richmond, Va.	37	32.2	77	26.1	30	979.948	− .009	+ .010	979.949	979.960	+ .011
147. Emporia, Va.	36	40.2	77	31	37	979.873	− .011	+ .015	979.877	979.898	+ .021
148. Greenville, N. C.	35	36.8	77	22.3	17	979.783	− .005	+ .019	979.797	979.787	− .010
149. Wilmington, N. C.	34	14.2	77	56.6	[illegible]	979.666	− .003	+ .023	979.686	979.663	− .023
150. Cheraw, S. C.	34	42.0	79	54	55	979.705	− .017	+ .013	979.701	979.711	+ .010

Principal facts for 219 gravity stations in the United States—Continued.

Number and name of station	Latitude ϕ	Longitude λ	Elevation H	Theoretical gravity γ_0	Correction for elevation	Correction for topography and compensation	Computed gravity at station g_c	Observed gravity at station g	$g-g_c$
	° ′	° ′	*Meters*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*
151. Charlotte, N. C	35 13.8	80 50.8	228	979.749	−0.070	+0.015	979.694	979.727	+0.033
152. Asheville, N. C	35 35.9	82 33.3	670	979.781	− .207	+ .026	979.600	979.603	+ .003
153. Cleveland, Tenn	35 09.4	84 52.9	263	979.743	− .081	+ .002	979.664	979.649	− .015
154. Winston-Salem, N. C	36 06.1	80 17	284	979.824	− .088	+ .012	979.748	979.718	− .030
155. Knoxville, Tenn	35 57.7	83 55	280	979.812	− .086	− .001	979.725	979.712	− .013
156. Bristol, Va	36 35.4	82 12	514	979.866	− .159	+ .012	979.719	979.712	− .007
157. Homestead, Fla	25 28.4	80 28.9	4	978.985	− .001	+ .029	979.013	978.985	− .028
158. Sebring, Fla	27 30.2	81 27	34	979.131	− .010	+ .023	979.144	979.135	− .009
159. Titusville, Fla	28 36.7	80 48.4	3	979.214	− .001	+ .023	979.236	979.243	+ .007
160. Leesburg, Fla	28 48.6	81 53	30	979.229	− .009	+ .021	979.241	979.235	− .006
161. Cedar Keys, Fla	29 08.3	83 02.1	3	979.255	− .001	+ .016	979.270	979.257	− .013
162. Macon, Ga	32 49.8	83 38	99	979.549	− .031	+ .007	979.525	979.552	+ .027
163. Albany, Ga	31 34.3	84 09	58	979.446	− .018	+ .011	979.439	979.449	+ .010
164. Pensacola, Fla	30 24.5	87 12.9	2	979.353	− .001	+ .014	979.366	979.360	− .006
165. Opelika, Ala	32 38.5	85 22.8	245	979.533	− .076	+ .017	979.474	979.456	− .018
166. Huntsville, Ala	34 43.8	86 35.2	200	979.707	− .062	+ .003	979.648	979.633	− .015
167. Arkansas City, Ark	33 36.5	91 12.2	44	979.613	− .014	+ .005	979.604	979.600	− .004
168. Memphis, Tenn	35 08.8	90 03.3	80	979.742	− .025	+ .002	979.719	979.740	+ .021
169. Mammoth Spring, Ark	36 29.3	91 27	156	979.857	− .048	− .002	979.807	979.828	+ .021
170. Hopkinsville, Ky	36 51.6	87 28	176	979.889	− .054	+ .006	979.841	979.855	+ .014
171. Danville, Ky	37 38.9	84 46.4	300	979.958	− .093	+ .011	979.876	979.855	− .021
172. Clifton Forge, Va	37 49.1	79 49.6	325	979.973	− .100	− .003	979.870	979.844	− .026
173. Greenville, Ala	31 49.4	86 38	130	979.466	− .040	+ .016	979.442	979.439	− .003
174. Birmingham, Ala	33 30.8	86 48.8	179	979.605	− .055	+ .011	979.561	979.536	− .025
175. Lexington, Va	37 47.2	79 26.6	324	979.970	− .100	+ .005	979.875	979.859	− .016
176. Prestonsburg, Ky	37 40.6	82 45.6	193	979.961	− .060	− .004	979.897	979.881	− .016
177. Traverse City, Mich	44 45.8	85 37.2	180	980.595	− .056	+ .002	980.541	980.550	+ .009
178. Seney, Mich	46 20.8	85 57.6	223	980.738	− .069	+ .007	980.676	980.685	+ .009
179. Oconto, Wis	44 53.2	87 52.0	181	980.606	− .056	− .001	980.549	980.532	− .017
180. Grand Rapids, Wis	44 23.6	89 46	306	980.561	− .094	+ .005	980.472	980.438	− .034
181. Winona, Minn	44 03.2	91 38.4	201	980.530	− .062	− .006	980.462	980.485	+ .023
182. Baldwin, Wis	44 57.8	92 23	342	980.613	− .106	+ .006	980.513	980.471	− .042
183. Cumberland, Wis	45 32.4	92 00	380	980.665	− .117	+ .008	980.556	980.515	− .041
184. Cambridge, Minn	45 34.0	93 11	303	980.667	− .094	+ .002	980.575	980.556	− .019
185. Brainerd, Minn	46 21.3	94 12.1	367	980.739	− .113	+ .003	980.629	980.649	+ .020
186. Aberdeen, S. Dak	45 27.5	98 29.0	396	980.657	− .122	− .005	980.530	980.550	+ .020
187. Faith, S. Dak	45 01.3	102 04	786	980.618	− .243	+ .006	980.381	980.404	+ .023
188. Marmarth, N. Dak	46 18.4	103 53	822	980.734	− .254	− .002	980.478	980.521	+ .043
189. Towner, N. Dak	48 20.3	100 26	451	980.917	− .139	− .004	980.774	980.814	+ .040
190. Crosby, N. Dak	48 54.7	103 19	598	980.969	− .185	+ .001	980.785	980.810	+ .025
191. Crookston, Minn	47 46.2	96 36	260	980.866	− .080	− .006	980.780	980.799	+ .019
192. Poplar, Mont	48 06.8	105 12	608	980.897	− .188	− .009	980.700	980.727	+ .027
193. Miles City, Mont	46 24.2	105 50	718	980.743	− .222	− .020	980.501	980.539	+ .038
194. Huntley, Mont	45 54.0	108 19.6	919	980.697	− .284	− .022	980.391	980.410	+ .019
195. Lander, Wyo	42 50.0	108 43	1635	980.420	− .505	− .028	979.887	979.914	+ .027
196. Fairbault, Minn	44 17.8	93 15	301	980.553	− .093	.000	980.460	980.504	+ .044
197. St. James, Minn	43 58.6	94 36	330	980.523	− .102	+ .002	980.423	980.437	+ .014
198. Edgemont, S. Dak	43 17.7	103 49.2	1066	980.462	− .329	− .012	980.121	980.183	+ .062
199. Dawson, Minn	44 55.8	96 01	323	980.610	− .100	− .003	980.507	980.532	+ .025
200. Cokato, Minn	45 04.5	94 12	319	980.623	− .098	+ .003	980.528	980.542	+ .014
201. Wasta, S. Dak	44 04.2	102 25	706	980.532	− .218	− .013	980.301	980.339	+ .038
202. Moorcroft, Wyo	44 15.5	104 58	1295	980.549	− .400	+ .005	980.154	980.183	+ .029
203. Duluth, Minn	46 47.0	92 06.4	216	980.777	− .067	− .010	980.700	980.758	+ .058
204. Osage, Iowa	43 16.8	92 47	356	980.460	− .110	+ .007	980.357	980.339	− .018
205. Randolph, Nebr	42 23.0	97 19	515	980.380	− .159	+ .005	980.226	980.236	+ .010
206. Valentine, Nebr	42 52.3	100 31	785	980.423	− .242	+ .004	980.185	980.211	+ .026
207. Wheeling, W. Va	40 04.0	80 43.4	205	980.172	− .063	− .003	980.106	980.085	− .021
208. Leon, Iowa	40 44.6	93 43	344	980.232	− .106	+ .007	980.133	980.133	.000
209. Laurel, Md	39 06.3	76 51.0	54	980.086	− .017	+ .007	980.076	980.118	+ .042
210. Harrisburg, Pa	40 16.0	76 53.1	104	980.190	− .032	+ .002	980.160	980.139	− .021
211. Pittsburg, Pa	40 27.4	80 00.6	235	980.206	− .073	.000	980.133	980.118	− .015
212. Rockville, Md	39 04.9	77 08.8	129	980.084	− .040	+ .013	980.057	980.111	+ .054
213. Upper Marlboro, Md	38 49.0	76 45.2	12	980.061	− .004	+ .007	980.064	980.085	+ .021
214. Fairfax, Va	38 47.7	77 19.6	115	980.059	− .035	+ .011	980.035	980.079	+ .044
215. Crisfield, Md	37 58.8	75 50.7	1	979.987	.000	+ .019	980.006	979.985	− .021
216. Fredericksburg, Va	38 18.1	77 27.5	16	980.015	− .005	+ .004	980.014	980.027	+ .013
217. Dover, Del	39 09.7	75 32.0	12	980.092	− .004	+ .013	980.101	980.099	− .002
218. North Tamarack, Mich	47 15.8	88 27.6	370	980.821	− .114	+ .020	980.727	980.766	+ .039
219. Hagerstown, Md	39 38.5	77 43.5	166	980.134	− .051	+ .006	980.089	980.048	− .041

GRAVITY FORMULA OF 1912.

In Special Publication No. 12 a new formula was derived which it was believed more nearly represented the conditions in the United States than did the Helmert formula of 1901. The new formula was found to be

$$\gamma_0 = 978.038\ (1 + 0.005304 \sin^2 \phi - 0.000007 \sin^2 2\ \phi)$$

(See p. 25, Special Publication No. 12.)

The formula advocated by the writer in that publication was the above formula modified by making the second term 0.005302, the same value as in Helmert's formula. The adopted 1912 formula is then

$$\gamma_0 = 978.038\ (1 + 0.005302 \sin^2 \phi - 0.000007 \sin^2 2\ \phi)$$

The investigations made in 1912 were based upon the values of gravity in the United States computed by this formula.

In the preceding table the mean value of $g\text{–}g_0$ is +0.005 dyne and the probable error of a single value is ±0.016 dyne. The residuals for the two Seattle stations (Nos. 53 and 56) are each −0.085 dyne, which is more than five times the probable error of a single value. This evidently indicates a very abnormal condition in the earth's crust near Seattle, and, it is believed, these two values should not be considered in taking means for the purpose of correcting the Helmert formula.

After rejecting the Seattle stations, the mean with regard to sign of $g\text{–}g_0$ is $+0.006 \pm 0.0011$ dyne. As this is more than five times its own probable error, it is believed it represents a real error in the first term of the Helmert formula. In 1912 the mean value of $g\text{–}g_0$, after rejecting Seattle, was +0.008 dyne. This was the value also found by a least square solution. As the 1912 formula would be modified by only 0.002 dyne if the mean from the above table were applied as a correction to the Helmert formula, it was thought better not to change from the 1912 value.

Later on in this volume (pp. 122 to 129) there are given various gravity formulas derived from stations in the United States and other countries from several groupings and upon different assumptions.

The 1912 anomalies used frequently in this volume were computed by the 1912 formula which is given above, the depth of compensation being 113.7 km.

The 1916 anomalies were computed by the 1916 formula for the United States and with a depth of 60 km. This formula is shown on page 123. For convenience it is inserted below.

Formula of 1916:

$$\gamma_0 = 978.040\ (1 + 0.005302 \sin^2 \phi - 0.000007 \sin^2 2\ \phi)$$

A plus sign of an anomaly means that at the station in question the observed intensity of gravity is in excess of that which would occur if the assumed conditions were true as to densities of the topography, and if the compensation were complete, uniformly distributed to the depth of compensation, and directly under the topographic features. If the anomaly is negative, the observed gravity is less than it would be if the ideal conditions obtained. A part of the anomaly is due to errors in the assumed densities, to departures from the depth of compensation with which the effect of the compensation is computed, and to erroneous values for the terms in the gravity formula. Errors in the assumed elevation of the station and in the contour maps used to compute the corrections for topography and isostatic compensation also cause a small part of the anomaly, as do also errors in the observations to determine the periods of the pendulums, and slight changes in the pendulums between standardizations.

An elaborate discussion of the various sources of error is given on pages 86 to 96 of Special Publication No. 10. It is shown that the average probable error of a computed value of gravity is ±0.003 dyne. It is not believed to be necessary to repeat that discussion of errors in this volume. The only modification of the statements made in Special Publication No. 10 that seems to be needed is discussed in connection with the correction for elevation, pages 93–96.

PRINCIPAL FACTS FOR 42 STATIONS IN CANADA.

The Geodetic Survey of Canada has recently been actively engaged in establishing gravity stations within its area, and in response to a request from the Superintendent of the United States Coast and Geodetic Survey the Director of the Canadian Survey generously placed at the author's disposal the unpublished data regarding the 42 Canadian stations. These data are given in the following table. They are used in computing gravity formulas (see pp. 113 to 131) and in the gravity anomaly maps (fig. 11, in the pocket at the end of the volume) and in a study of the relations between the anomalies and the geologic formation.

The observations and the reduction for topography and isostatic compensation were made by F. A. McDiarmid, of the Geodetic Survey of Canada.

The observed values are on the Potsdam system, and the computed values are based upon Helmert's formula of 1901 and the gravity reduction tables given on pages 30 to 47 of Special Publication No. 10. The data are therefore similar to those for the United States stations given on pages 50–52 of this volume.

Principal facts for 42 stations in Canada.

Number and name of station	Latitude ϕ	Longitude λ	Elevation H	Theoretical gravity γ_0	Correction for elevation	Correction for topography and compensation	Computed gravity at station g_0	Observed gravity at station g	$g-g_0$	Hayford anomaly, 1912
	° ′ ″	h m s	*Meters*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*
1. Ottawa	45 23 39	5 02 52	83	980. 651	−0. 026	0. 000	980. 625	980. 615	−0. 010	−0. 018
2. Maniwaki	46 22 28	5 03 55	169	980. 740	− . 052	− . 001	980. 687	980. 685	− . 002	− . 010
3. Kingston	44 14 37	5 05 55	79	980. 547	− . 024	+ . 008	980. 531	980. 527	− . 004	− . 012
4. Roberval	48 30 54	4 48 54	107	980. 933	− . 033	− . 015	980. 885	980. 865	− . 020	− . 028
5. Tadoussac	48 08 25	4 38 52	12	980. 900	− . 004	− . 004	980. 892	980. 901	+ . 009	+ . 001
6. Portneuf	46 42 32	4 47 35	59	980. 770	− . 018	+ . 005	980. 757	980. 760	+ . 003	− . 005
7. St. Jerome	45 46 34	4 56 00	107	980. 686	− . 033	+ . 006	980. 659	980. 678	+ . 019	+ . 011
8. Ste. Anne de Bellevue	45 24 27	4 55 46	34	980. 653	− . 010	+ . 003	980. 646	980. 660	+ . 014	+ . 006
9. Mattawa	46 18 43	5 14 49	170	980. 734	− . 052	− . 013	980. 669	980. 647	− . 022	− . 030
10. Liskeard	47 30 34	5 18 41	194	980. 843	− . 060	− . 004	980. 779	980. 785	+ . 006	− . 002
11. Cochrane	49 03 44	5 24 05	277	980. 983	− . 085	− . 004	980. 894	980. 880	− . 014	− . 022
12. Sault Ste. Marie	46 30 26	5 37 18	186	980. 752	− . 057	− . 005	980. 690	980. 677	− . 013	− . 021
13. Chapleau	47 50 27	5 33 37	430	980. 872	− . 133	+ . 012	980. 751	980. 763	+ . 012	+ . 004
14. Port Arthur	48 26 00	5 56 52	189	980. 926	− . 058	− . 014	980. 854	980. 817	− . 037	− . 045
15. Rose Point	45 19 02	5 20 10	183	980. 644	− . 056	+ . 001	980. 589	980. 603	+ . 014	+ . 006
16. Whitby	43 52 43	5 15 46	84	980. 514	− . 026	− . 004	980. 484	980. 458	− . 026	− . 034
17. Woodstock, Ontario	43 08 33	5 23 08	299	980. 448	− . 093	− . 002	980. 353	980. 349	− . 004	− . 012
18. Windsor	42 19 16	5 32 10	178	980. 373	− . 055	. 000	980. 318	980. 338	+ . 020	+ . 012
19. St. John	45 16 03	4 24 20	33	980. 640	− . 010	+ . 016	980. 646	980. 660	+ . 014	+ . 006
20. Moncton	46 05 04	4 19 09	14	980. 713	− . 004	+ . 014	980. 723	980. 725	+ . 002	− . 006
21. Charlottetown	46 13 55	4 12 30	8	980. 727	− . 002	+ . 013	980. 738	980. 730	− . 008	− . 016
22. Sydney	46 08 21	4 00 47	12	980. 719	− . 004	+ . 014	980. 729	980. 728	− . 001	− . 009
23. Truro	45 21 40	4 13 06	18	980. 649	− . 006	+ . 014	980. 657	980. 659	+ . 002	− . 006
24. Halifax	44 40 47	4 14 15	9	980. 587	− . 003	+ . 008	980. 592	980. 571	− . 021	− . 029
25. Yarmouth	43 50 07	4 24 29	[illegible]	980. 510	− . 003	+ . 014	980. 521	980. 540	+ . 019	+ . 011
26. Woodstock, New Brunswick	46 09 02	4 30 18	56	980. 720	− . 017	+ . 008	980. 711	980. 696	− . 015	− . 023
27. Edmundston	47 22 11	4 33 18	148	980. 830	− . 046	− . 010	980. 774	980. 771	− . 003	− . 011
28. Bathurst	47 37 10	4 22 36	5	980. 853	− . 002	. 000	980. 851	980. 833	− . 018	− . 026
29. Perce	48 31 33	4 16 51	6	980. 935	− . 002	− . 002	980. 931	980. 947	+ . 016	+ . 008
30. Kenora	49 46 00	6 18 00	[illegible]	981. 046	− . 102	+ . 018	980. 962	980. 971	+ . 009	+ . 001
31. Winnipeg	49 54 23	6 28 32	231	981. 057	− . 071	+ . 002	980. 988	980. 987	− . 001	− . 009
32. Brandon	49 50 54	6 39 47	366	981. 053	− . 113	− . 002	980. 938	980. 953	+ . 015	+ . 007
33. Moose Jaw	50 23 26	7 02 07	541	981. 101	− . 167	+ . 003	980. 937	980. 940	+ . 003	− . 005
34. Medicine Hat	50 02 25	7 22 40	664	981. 070	− . 205	− . 002	980. 863	980. 865	+ . 002	− . 006
35. Calgary	51 02 43	7 36 15	1044	981. 160	− . 322	− . 022	980. 816	980. 820	+ . 004	− . 004
36. Banff	51 10 53	7 42 18	1376	981. 172	− . 425	− . 012	980. 735	980. 750	+ . 015	+ . 007
37. Field	51 23 42	7 45 59	1239	981. 190	− . 382	− . 060	980. 748	980. 745	− . 003	− . 011
38. Revelstoke	50 59 48	7 52 47	453	981. 155	− . 140	− . 080	980. 935	980. 900	− . 035	− . 043
39. Kamloops	50 40 42	8 01 18	352	981. 127	− . 109	− . 073	980. 945	980. 944	− . 001	− . 009
40. North Bend	49 52 17	8 05 48	152	981. 055	− . 047	− . 122	980. 886	980. 886	. 000	− . 008
41. Glacier	51 15 44	7 49 58	1248	981. 179	− . 385	− . 066	980. 728	980. 738	+ . 010	+ . 002
42. Vancouver	49 16 49	8 12 27	6	981. 002	− . 002	− . 046	980. 954	980. 946	− . 008	− . 016

PRINCIPAL FACTS FOR 73 STATIONS IN INDIA.

In the office of the Survey of India the Hayford reductions have been made for 73 stations in that country. The data regarding them are published in a report of the Survey of India, title of which is given in a footnote on page 45.

The corrections for elevations as given in the Indian report were computed by the formula:

$$\text{Correction for elevation} = -\frac{2gH}{R}$$

in which a mean value of the radius of the earth, R, is taken as 20,900,000 feet. H is the elevation of the station in feet. These corrections are given in the column headed "Correction for elevation, Indian," in the table following. In the column headed "Correction for elevation, U. S. C. & G. S." are given the corrections computed by the formula:

$$\text{Correction for elevation} = -0.0003086\ H$$

in which H is the elevation of the station in meters. The maximum difference is 0.006 dyne at station No. 95, Sandakphu. The results by the second formula have been used in the discussions in this volume, as this formula is somewhat more accurate in theory.[a]

The reductions for topography and compensation were computed in much the same way as is done by the United States Coast and Geodetic Survey. For zones 18 to 1 the methods and constants are identical. For the inner zones which are lettered from A to O a slightly different gravitation constant was used. It is 657×10^{-10} for C. G. S. units, while the one used by the United States Coast and Geodetic Survey is 667.3×10^{-10}. The depth of compensation used is 70 miles, 112.65 km., instead of 113.7 km. The compensation was distributed from sea level instead of from the surface of the earth. For ocean areas the Indian Survey distributed the compensation from the bottom to a depth of 70 miles (112.65 km.) below the surface of the water, while the United States Coast and Geodetic Survey distributes the compensation from the ocean bottom to a depth of 113.7 km. below the ocean bottom.

These changes in the method of computing the topography and the compensation do not make any differences which need be considered in our discussions. We may consider the India data similar to those which we have for the United States, Canada, and Europe, all of which are based upon identical methods and constants.

In the fourth column from the last in the following table are given the gravity anomalies based upon the Hayford reduction and the Helmert formula of 1901 with 978.030 as the first term and with the Indian corrections for elevation of station. In next to the last column are given the anomalies which are similar in every way to those just mentioned except that the United States correction for elevation is applied instead of the Indian correction. The theoretical values of gravity at sea level as computed with the Helmert formula are given in the fifth column.

The observed values given in the following table are based upon the value of 979.063 dynes for Dehra Dun. The value of gravity at that station as given in the latest report of the International Geodetic Association is 979.065 dynes.

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[a] "Ueber die Reduction der auf der physischen Erdoberfläche beobachteten Schweresbeschleunigungen auf ein gemeinsames Niveau" by Helmert, Sitzungsberichte der Königlich Preussischen Akademie der Wissenschaften, volumes for 1902, p. 843, and 1903, p. 650.

Principal facts for 73 stations in India.

Number and name of station	Latitude φ	Longitude λ	Elevation H	Theoretical gravity γ_0	Correction elevation (Indian)	Correction for topography and compensation	Computed gravity at station g_0	Observed gravity at station g	$g-g_0$ (Indian)	Correction for elevation (U. S. C. & G. S.)	$g-g_0$ (U.S.C. & G.S.)	Hayford anomaly, 1912
	° ′ ″	° ′ ″	*Meters*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*
1. Agra	27 10 20	78 01 07	163	979.107	−0.050	−0.018	979.039	979.056	+0.017	−0.050	+0.017	+0.009
2. Aligarh	27 53 32	78 00 31	187	979.160	− .057	− .021	979.082	979.075	− .007	− .058	− .006	− .014
3. Allahabad	25 25 55	81 55	88	978.982	− .027	− .021	978.934	978.943	+ .009	− .027	+ .009	+ .001
4. Amgaon	21 21 31	80 28	315	978.715	− .097	− .001	978.617	978.614	− .003	− .097	− .003	− .011
5. Amraoti	20 55 50	77 45 40	342	978.689	− .105	− .001	978.583	978.609	+ .026	− .106	+ .027	+ .019
6. Arrah	25 34 10	84 39	57	978.992	− .018	− .028	978.946	978.918	− .028	− .018	− .028	− .036
8. Asigarh	21 28 10	76 17 50	633	978.721	− .194	+ .027	978.554	978.584	+ .030	− .195	+ .031	+ .023
9. Badnur	21 54 10	77 54 10	641	978.748	− .197	+ .018	978.569	978.607	+ .038	− .198	+ .039	+ .031
12. Bhopal	23 15 58	77 25	497	978.835	− .153	+ .007	978.689	978.711	+ .022	− .153	+ .022	+ .014
13. Bilaspur	22 03 53	82 12	263	978.758	− .082	− .008	978.668	978.681	+ .013	− .083	+ .014	+ .006
14. Bina	24 10 41	78 11 46	413	978.896	− .127	.000	978.769	978.795	+ .026	− .127	+ .026	+ .018
15. Buxar	25 34 42	83 59	63	978.992	− .019	− .026	978.947	978.933	− .014	− .019	− .014	− .022
16. Chatra	24 12 40	88 23 27	20	978.898	− .006	− .019	978.873	978.878	+ .005	− .006	+ .005	− .003
17. Colaba	18 53 45	72 48 47	10	978.571	− .003	.000	978.568	978.631	+ .063	− .003	+ .063	+ .055
18. Cuttack	20 29 05	85 52 01	28	978.662	− .009	.000	978.653	978.659	+ .006	− .009	+ .006	− .002
19. Daltonganj	24 02 05	84 04	215	978.886	− .066	− .018	978.802	978.827	+ .025	− .066	+ .025	+ .017
20. Damoh	23 49 54	79 26	370	978.873	− .114	− .005	978.754	978.758	+ .004	− .114	+ .004	− .004
22. Dehra Dun	30 19 29	78 03 15	682	979.347	− .210	− .080	979.057	979.063	+ .006	− .210	+ .006	− .002
24. Dholpur	26 42 01	77 54 47	176	979.072	− .054	− .015	979.003	978.999	[a] − .005	− .054	− .005	− .013
26. Ellichpur	21 18 20	77 30 40	401	978.711	− .123	− .001	978.587	978.618	+ .031	− .124	+ .032	+ .024
29. Gaya	24 47 42	85 00	110	978.938	− .034	− .023	978.881	978.884	+ .003	− .034	+ .003	− .005
30. Gesupur	28 33 02	77 42 03	211	979.210	− .065	− .025	979.120	979.125	+ .005	− .065	+ .005	− .003
31. Goona	24 38 48	77 19 13	478	978.928	− .147	+ .007	978.788	978.807	+ .019	− .148	+ .020	+ .012
32. Gorakhpur	26 44 58	83 23	78	979.076	− .024	− .046	979.006	978.936	− .070	− .024	− .070	− .078
33. Gwalior	26 13 57	78 12 49	201	979.039	− .062	− .012	978.965	978.958	− .007	− .062	− .007	− .015
35. Hathras	27 36 52	78 03 22	179	979.139	− .055	− .020	979.064	979.075	+ .011	− .055	+ .011	+ .003
37. Hoshangabad	22 45 00	77 43 50	305	978.802	− .094	− .010	978.698	978.719	+ .021	− .094	+ .021	+ .013
38. Jacobabad	28 16 34	68 27 05	56	979.189	− .017	− .024	979.148	979.186	+ .038	− .017	+ .038	+ .030
39. Jalgaon	21 00 00	75 33 50	232	978.693	− .071	− .009	978.613	978.633	+ .020	− .071	+ .020	+ .012
40. Jalpaiguri	26 31 16	88 44 13	82	979.060	− .025	− .093	978.942	978.922	− .020	− .025	− .020	− .028
41. Japla	24 31 58	84 00	144	978.920	− .044	− .022	978.854	978.856	+ .002	− .044	+ .002	− .006
42. Jhansi	25 27 02	78 33 43	262	978.983	− .080	− .007	978.896	978.910	+ .014	− .081	+ .015	+ .007
43. Jubbulpore	23 08 54	79 59	447	978.828	− .137	− .002	978.689	978.719	+ .030	− .138	+ .031	+ .023
44. Kaliana	29 30 55	77 39 06	247	979.284	− .076	− .047	979.161	979.154	− .007	− .076	− .007	− .015
45. Kalianpur	24 07 11	77 39 17	537	978.892	− .165	+ .011	978.738	978.777	+ .039	− .166	+ .040	+ .032
48. Katni	23 50 25	80 26	382	978.873	− .117	− .006	978.750	978.757	+ .007	− .118	+ .008	.000
50. Khandwa	21 49 30	76 21 30	309	978.743	− .095	− .003	978.645	978.692	+ .047	− .095	+ .047	+ .039
51. Khurja	28 14 19	77 51 53	198	979.186	− .061	− .024	979.101	979.082	− .019	− .061	− .019	− .027
52. Kisnapur	25 02 26	88 28 29	34	978.955	− .011	− .027	978.917	978.956	+ .039	− .011	+ .039	+ .031
55. Lalitpur	24 41 29	78 24 26	365	978.931	− .112	− .003	978.816	978.814	− .002	− .113	− .001	− .009
58. Madras	13 04 08	80 14 54	6	978.294	− .002	+ .040	978.332	978.279	− .053	− .002	− .053	− .061
59. Maihar	24 15 38	80 48	354	978.902	− .109	− .006	978.787	978.784	− .003	− .109	− .003	− .011
60. Majhauli Raj	26 17 46	83 58	67	979.043	− .021	− .037	978.985	978.928	− .057	− .021	− .057	− .065
65. Mhow	22 33 10	75 45 40	580	978.789	− .178	+ .024	978.635	978.620	− .015	− .179	− .014	− .022
66. Mian Mir	31 31 37	74 22 32	216	979.442	− .066	− .033	979.343	979.383	+ .040	− .067	+ .041	+ .033
67. Moghal Sarai	25 17 03	83 06	78	978.972	− .024	− .024	978.924	978.919	− .005	− .024	− .005	− .013
70. Monghyr	25 22 53	86 28	47	978.979	− .014	− .031	978.934	978.909	− .025	− .014	− .025	− .033
71. Montgomery	30 39 47	73 06 18	170	979.373	− .052	− .019	979.302	979.321	+ .019	− .052	+ .019	+ .011
72. Mortakka	22 13 20	76 02 50	176	978.768	− .054	− .016	978.698	978.703	+ .005	− .054	+ .005	− .003
73. Mukhtiara	22 23 40	75 58 40	282	978.779	− .087	− .009	978.683	978.664	− .019	− .087	− .019	− .027
75. Mussoorie (Camel's Back)	30 27 35	78 04 32	2110	979.357	− .649	+ .032	978.740	978.793	+ .053	− .651	+ .055	+ .047
77. Muttra	27 28 25	77 41 48	171	979.129	− .053	− .019	979.057	979.072	+ .015	− .053	+ .015	+ .007
78. Muzaffarpur	26 07 05	85 25	55	979.031	− .017	− .038	978.976	978.934	− .042	− .017	− .042	− .050
82. Ootacamund	11 24 37	76 42 03	2254	978.232	− .692	+ .183	977.723	977.735	+ .012	− .696	+ .016	+ .008
83. Pathankot	32 16 33	75 39 03	332	979.503	− .101	− .088	979.314	979.237	[a] − .076	− .102	− .075	− .083
84. Pendra	22 46 41	82 00	606	978.804	− .187	+ .013	978.630	978.638	+ .008	− .188	+ .009	+ .001
87. Quetta	30 12 15	67 00 41	1682	979.337	− .517	+ .024	978.844	978.851	+ .007	− .519	+ .009	+ .001
88. Raipur	21 13 56	81 41	304	978.707	− .093	+ .001	978.615	978.612	− .003	− .094	− .002	− .010
89. Rajpur	30 24 12	78 05 47	1012	979.353	− .311	− .066	978.976	979.002	+ .026	− .312	+ .027	+ .019
91. Ranchi	23 23 05	85 19	661	978.843	− .203	+ .021	978.661	978.691	+ .030	− .204	+ .031	+ .023
93. Roorkee	29 52 20	77 53 59	264	979.311	− .081	− .057	979.173	979.129	− .044	− .081	− .044	− .052
94. Salem	11 40 05	78 09 10	289	978.241	− .089	+ .012	978.164	978.116	− .048	− .089	− .048	− .056
95. Sandakphu	27 06 06	88 00 15	3586	979.102	−1.101	+ .141	978.142	978.190	+ .048	−1.107	+ .054	+ .046
96. Sasaram	24 57 21	83 59	104	978.949	− .032	− .023	978.894	978.903	+ .009	− .032	+ .009	+ .001
97. Saugor	23 51 47	78 48	536	978.875	− .165	+ .010	978.720	978.731	+ .011	− .165	+ .011	+ .003
98. Seoni	22 05 29	77 29	619	978.760	− .190	+ .016	978.586	978.622	+ .036	− .191	+ .037	+ .029
99. Shahpur	22 11 30	77 54 10	392	978.766	− .120	− .006	978.640	978.663	+ .023	− .121	+ .024	+ .016
100. Sibi	29 32 46	67 52 31	132	979.286	− .040	− .067	979.179	979.119	[a] − .059	− .041	− .058	− .066
101. Siliguri	26 41 47	88 24 50	118	979.072	− .036	− .110	978.926	978.887	− .039	− .036	− .039	− .047
103. Sipri	25 25 52	77 39 25	467	978.982	− .144	+ .009	978.847	978.876	+ .029	− .144	+ .029	+ .021
106. Ujjain	23 11 00	75 47	491	978.830	− .151	+ .009	978.688	978.677	− .011	− .152	− .010	− .018
107. Umaria	23 31 37	80 54	457	978.853	− .140	− .002	978.711	978.740	+ .029	− .141	+ .030	+ .022
108. Yercaud	11 46 56	78 12 29	1369	978.245	− .420	+ .116	977.941	977.908	− .033	− .422	− .031	− .039

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[a] The anomalies for stations 24, 83, and 100 are reproduced as given in the original source, although the data as taken from there to three decimals of a dyne and repeated here give an anomaly differing by 0.001 dyne. It is supposed that the discepancy is due to additional decimals used in the computation but omitted in the published statement. The anomalies in other columns correspond to the values given in this column.

PRINCIPAL FACTS FOR 40 STATIONS NOT IN THE UNITED STATES PROPER, CANADA, OR INDIA.

The following table contains the principal facts for 40 stations outside of Canada, India, and the United States proper. The data for stations Nos. 1 to 36, inclusive, except the correction for topography and compensation and the resulting g_c, were obtained from the reports of the International Geodetic Association. The correction for topography and compensation of Nos. 1 to 27 was computed by the United States Coast and Geodetic Survey for depth of compensation of 113.7 km. in the usual way, and for Nos. 28 to 36 it was computed by Mr. Niethammer from Hayford's tables, and is taken from the "Procès Verbal de la 56me séance de la commission géodésique Suisse," Neuchâtel, 1910. Stations 37 to 40 are from a publication of the Royal Italian Geodetic Commission, "Determinazioni di Gravita relativa compiute nel 1912," by Reina and Cassinis, Rome, 1913. The correction for topography and isostatic compensation is there computed for a depth of 120 km. and contains the error noted in the footnote on page 98 of this publication. The error has been corrected and an approximate allowance made to change the depth to 113.7 km. The combined effect of these two changes was to reduce the anomaly in each case by 0.001 dyne.

The theoretical gravity throughout the table is based on Helmert's formula of 1901, Potsdam system.

It is intended that the several tables of principal facts (pp. 50 to 57) shall contain data for all well-observed gravity stations on land known to this Survey for which corrections, by Hayford's method, for topography and isostatic compensation have been computed for the depth 113.7 km. In the Comptes Rendus de la 17me Conférence géodésique de l'Association Géodésique Internationale, IIme Volume (Rapports Speciaux) pages 41 and 404, are given lists of corrections for topography and compensation for stations chiefly in Africa that are not included in this publication owing to lack of information as to the assumptions and methods underlying the computation.

Principal facts for 40 stations not in the United States proper, Canada, or India.

Number and name of station	Latitude ϕ	Longitude λ	Elevation H	Theoretical gravity γ_0	Correction for elevation	Correction for topography and compensation	Computed gravity at station g_c	Observed gravity at station g	$g-g_c$	Hayford anomaly, 1912
	° ′	° ′	*Meters*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*	*Dynes*
1. Stilfserjoch (Stelvio Pass), Austria	46 31.8	10 27.4	2760	980.755	−0.852	+0.152	980.055	980.045	−0.010	−0.018
2. Franzenhöhe, Austria	46 32.0	10 29.0	2188	980.755	− .675	+ .087	980.167	980.153	− .014	− .022
3. Schneekoppe, Germany	50 44.2	15 44.6	[illegible]	981.132	− .495	+ .110	980.747	980.776	+ .029	+ .021
4. Alte Bruch, Germany	50 45.7	15 44.6	917	981.134	− .283	+ .060	980.911	980.930	+ .019	+ .011
5. Brocken, Germany	51 48.0	10 37.0	1140	981.226	− .352	+ .088	980.962	981.015	+ .053	+ .045
6. Scharfenstein, Germany	51 50.0	10 36.0	[illegible]	981.229	− .192	+ .041	981.078	981.130	+ .052	+ .044
7. Naye, Switzerland	46 26.0	6 58.7	1987	980.746	− .613	+ .074	980.207	980.233	+ .026	+ .018
8. Villeneuve, Switzerland	46 24.1	6 55.7	376	980.743	− .116	− .074	980.553	980.572	+ .019	+ .011
9. Chaumont, Switzerland	47 01.4	6.57.1	1018	980.799	− .314	+ .025	980.510	980.554	+ .044	+ .036
10. Neuenburg (Neuchâtel), Switzerland	47 00.1	6 57.3	487	980.797	− .150	− .026	980.621	980.653	+ .032	+ .024
11. Gornergrat, Switzerland	45 59.0	7 46.8	3016	980.705	− .931	+ .165	979.939	979.992	+ .053	+ .045
12. Riffelberg, Switzerland	45 59.6	7 45.3	2566	980.705	− .792	+ .122	980.035	980.090	+ .055	+ .047
13. Zermatt, Switzerland	46 01.5	7 45.0	1603	980.708	− .495	− .007	980.206	980.250	+ .044	+ .036
14. Belalp, Switzerland	46 22.9	7 59.6	2132	980.741	− .658	+ .079	980.162	980.172	+ .010	+ .002
15. Brig, Switzerland	46 19.7	8 00.4	683	980.737	− .211	− .085	980.441	980.437	− .004	− .012
16. Eggishorn, Switzerland	46 25.2	8 06.8	2187	980.745	− .675	+ .086	980.156	980.169	+ .013	+ .005
17. Fiesch, Switzerland	46 24.2	8 08.1	1049	980.743	− .324	− .043	980.376	980.376	.000	− .008
18. St. Maurice, Switzerland	46 13.0	7 00.2	422	980.726	− .130	− .091	980.505	980.512	+ .007	− .001
19. Honolulu, Hawaiian Islands [a]	21 18.1	157 51.8	6	978.711	− .002	+ .162	978.871	978.946	+ .075	+ .067
20. Mauna Kea, Hawaiian Islands [a]	19 49.2	155 28.8	3981	978.623	−1.229	+ .469	977.863	978.069	+ .206	+ .198
21. Hachinohe, Japan	40 31	141 30	21	980.212	− .006	+ .049	980.255	980.359	+ .104	+ .096
22. St. Georges, Bermuda [a]	32 21	64 [illegible]	2	979.509	− .001	+ .218	979.726	979.806	+ .080	+ .072
23. Jamestown, St. Helena [a]	−15 55	5 43.7	10	978.418	− .003	+ .177	978.592	978.712	+ .120	+ .112
24. Sorvagen, Norway	67 53.6	13 02	19	982.478	− .006	+ .016	982.488	982.622	+ .134	+ .126
25. Kala-i-Chumb, Turkestan	38 27.3	70 46.5	1345	980.029	− .415	− .086	979.528	979.462	− .066	− .074
26. St. Paul Island, Alaska [a]	57 07.3	170 16.6	10	981.682	− .003	+ .041	981.720	981.726	+ .006	− .002
27. St. Michael, Alaska [a]	63 28.5	162 02.4	1	982.178	.000	− .004	982.174	982.192	+ .018	+ .010
28. Sitten, Switzerland	46 14.1	7 21.5	514	980.728	− .159	− .082	980.487	980.480	− .007	− .015
29. Visp, Switzerland	46 17.6	7 53.0	649	980.733	− .200	− .090	980.443	980.441	− .002	− .010
30. Iselle, Switzerland	46 12.5	8 12.1	630	980.725	− .194	− .105	980.426	980.430	+ .004	− .004
31. Gsteig, Switzerland	46 23.2	7 16.2	1185	980.742	− .366	− .001	980.375	980.396	+ .021	+ .013
32. Simplon Hospice, Switzerland	46 14.9	8 01.9	1998	980.729	− .617	+ .076	980.188	980.202	+ .014	+ .006
33. Grand St. Bernard, Switzerland	45 52.1	7 10.4	2473	980.694	− .763	+ .131	980.062	980.072	+ .010	+ .002
34. Sanetsch, Switzerland	46 19.3	7 17.2	2041	980.736	− .630	+ .085	980.191	980.211	+ .020	+ .012
35. Chanrion, Switzerland	45 56.3	7 22.9	2435	980.700	− .751	+ .113	980.062	980.107	+ .045	+ .037
36. Schwarzsee, Switzerland	45 59.5	7 42.7	2582	980.705	− .797	+ .125	980.033	980.090	+ .057	+ .049
37. Rome, Italy	41 53.5	12 29.7	49	980.335	− .015	− .012	980.308	980.367	+ .059	+ .051
38. Florence (Arcetri), Italy	43 45.2	11 15.2	184	980.503	− .057	− .023	980.423	980.491	+ .068	+ .060
39. Leghorn, Italy	43 32.0	10 18.5	6	980.483	− .002	− .018	980.463	980.534	+ .071	+ .063
40. Genoa, Italy	44 29.2	8 55	98	980.560	− .030	− .020	980.510	980.557	+ .047	+ .039

[a] This station is in west longitude.

Chapter III.—COMPARISON OF APPARENT ANOMALIES AT STATIONS IN THE UNITED STATES BY THE HAYFORD AND OLD METHODS OF REDUCTION.

In the following tables $g_o'' - \gamma_o$ and $g_o - \gamma_o$ have the same meanings as in the reports of the International Geodetic Association.

The quantity $g_o'' - \gamma_o$ is the apparent anomaly when the Helmert formula of 1901 and the Bouguer reduction are used. The Bouguer formula has been very generally applied in reducing pendulum observations to the level of the sea. This formula is $dg = +\frac{2gH}{r}\left(1 - \frac{3\delta}{4\Delta}\right)$ where dg is the correction to observed gravity, g is gravity at sea level, H is elevation above sea level, r is radius of the earth, δ is density of matter lying above sea level, and Δ is mean density of the earth. The first term takes account of the distance from the earth's center, and the second term of the vertical attraction of the matter lying between sea level and the station, on the supposition that the latter is located on an indefinitely extended horizontal plain. Wherever the topography about a station departs materially from this conditon of a horizontal plain a third term must be added to the above formula, being a correction to the second term or to observed gravity on account of such irregularities. The Bouguer reduction thus takes no account of isostatic compensation and neglects all curvature of the sea-level surface, the topography being treated as if it were standing on a plain of indefinite extent.

The quantity $g_o - \gamma_o$ is the apparent anomaly when the Helmert formula of 1901 is used in connection with the so-called reduction to sea level in free air only (0.0003086 H). This reduction ignores both the topography and the isostatic compensation. It takes account simply of the increased distance of the station from the earth's center when the station is above sea level.

A comparison of the anomalies by the Hayford method, on the one hand, with those by the two older methods, as shown in the columns headed $g_o'' - \gamma_o$, and $g_o - \gamma_o$, on the other hand, will therefore show the merits of the Hayford method of reduction in compariosn with the Bouguer and the free-air methods.

This comparison of the Hayford method with the Bouguer and free-air reductions is made because the Bouguer reduction postulates a total lack of compensation and a consequent high rigidity of the earth's crust while the free-air method assumes that each piece of topography is completely compensated for at zero depth. Besides, the Bouguer and free-air methods are those which have been most generally used.

The Hayford anomalies in the following table are based upon the Coast and Geodetic Survey formula of 1912 in which the first term is 978.038.

Anomalies by Hayford, Bouguer, and free-air reductions.

Number and name of station	Anomaly		
	Hayford, 1912	Bouguer ($g_0''-\gamma_0$)	In free air ($g_0-\gamma_0$)
1. Key West, Fla	+0.005	+0.048	+0.048
2. West Palm Beach, Fla	+ .018	+ .057	+ .057
3. Punta Gorda, Fla	+ .010	+ .038	+ .038
4. Apalachicola, Fla	.000	+ .023	+ .023
5. New Orleans, La	− .013	+ .008	+ .008
6. Rayville, La	+ .016	+ .029	+ .032
7. Galveston, Tex	− .009	+ .006	+ .006
8. Point Isabel, Tex	+ .027	+ .049	+ .050
9. Laredo, Tex	− .020	− .022	− .009
10. Austin, Tex. (capitol)	− .008	− .021	− .003
11. Austin, Tex. (university)	− .010	− .023	− .003
12. McAlester, Okla	− .027	− .045	− .018
13. Little Rock, Ark	+ .030	+ .030	+ .039
14. Columbia, Tenn	+ .026	+ .017	+ .040
15. Atlanta, Ga	− .023	− .036	− .001
16. McCormick, S. C	+ .015	+ .017	+ .035
17. Charleston, S. C	− .021	+ .003	+ .003
18. Beaufort, N. C	− .021	+ .023	+ .023
19. Charlottesville, Va	− .013	− .021	− .003
20. Deer Park, Md	+ .010	− .019	+ .059
21. Washington, D. C. (Coast and Geodetic Survey Office)	+ .037	+ .048	+ .049
22. Washington, D. C. (Smithsonian Institution)	+ .039	+ .049	+ .050
23. Baltimore, Md	− .011	.000	+ .003
24. Philadelphia, Pa	+ .022	+ .037	+ .039
25. Princeton, N. J	− .019	− .004	+ .002
26. Hoboken, N. J	+ .024	+ .039	+ .040
27. New York, N. Y	+ .022	+ .037	+ .041
28. Worcester, Mass	− .020	− .014	+ .006
29. Boston, Mass	+ .005	+ .024	+ .026
30. Cambridge, Mass	+ .005	+ .022	+ .023
31. Calais, Me	− .008	+ .006	+ .010
32. Ithaca, N. Y	− .023	− .033	− .010
33. Cleveland, Ohio	− .003	− .016	+ .005
34. Cincinnati, Ohio	− .019	− .034	− .009
35. Terre Haute, Ind	− .009	− .016	.000
36. Chicago, Ill	− .007	− .012	+ .008
37. Madison, Wis	− .005	− .024	+ .006
38. St. Louis, Mo	− .005	− .014	+ .004
39. Kansas City, Mo	− .016	− .038	− .009
40. Ellsworth, Kans	+ .014	− .029	+ .016
41. Wallace, Kans	− .012	− .105	− .004
42. Colorado Springs, Colo	− .007	− .188	− .006
43. Pikes Peak, Colo	+ .021	− .204	+ .216
44. Denver, Colo	− .016	− .182	− .023
45. Gunnison, Colo	+ .020	− .229	+ .027
46. Grand Junction, Colo	+ .024	− .158	− .019
47. Green River, Utah	− .021	− .180	− .056
48. Pleasant Valley Junction, Utah	+ .004	− .187	+ .036
49. Salt Lake City, Utah	+ .010	− .146	− .023
50. Grand Canyon, Wyo	− .002	− .208	+ .044
51. Norris Geyser Basin, Wyo	+ .021	− .177	+ .060
52. Lower Geyser Basin, Wyo	− .001	− .193	+ .035
53. Seattle, Wash. (university)	− .093	− .111	− .105
54. San Francisco, Cal	− .023	+ .019	+ .030
55. Mount Hamilton, Cal	− .003	+ .003	+ .125
56. Seattle, Wash. (high school)	− .093	− .111	− .103
57. Iron River, Mich	+ .038	+ .009	+ .060
58. Ely, Minn	+ .023	− .010	+ .039
59. Pembina, N. Dak	+ .019	− .008	+ .018
60. Mitchell, S. Dak	+ .001	− .040	+ .003
61. Sweetwater, Tex	− .029	− .064	− .012
62. Kerrville, Tex	+ .031	− .003	+ .052
63. El Paso, Tex	+ .007	− .111	+ .016
64. Nogales, Ariz	− .050	− .132	− .004
65. Yuma, Ariz	+ .009	+ .001	+ .007
66. Compton, Cal	− .050	− .041	− .042
67. Goldfield, Nev	− .013	− .166	+ .022
68. Yavapai, Ariz	+ .001	− .162	+ .043
69. Grand Canyon, Ariz	− .010	− .173	− .098
70. Gallup, N. Mex	− .013	− .211	+ .009
71. Las Vegas, N. Mex	+ .003	− .189	+ .028
72. Shamrock, Tex	+ .032	− .031	+ .047
73. Denison, Tex	+ .005	− .012	+ .012
74. Minneapolis, Minn	+ .059	+ .034	+ .062
75. Lead, S. Dak	+ .052	− .072	+ .104
76. Bismarck, N. Dak	+0.002	−0.052	+0.005
77. Hinsdale, Mont	+ .029	− .053	+ .020
78. Sandpoint, Idaho	+ .002	− .105	− .034
79. Boise, Idaho	+ .008	− .117	− .026
80. Astoria, Oreg	− .013	+ .003	+ .003
81. Sisson, Cal	− .010	− .103	+ .013
82. Rock Springs, Wyo	+ .013	− .191	+ .020
83. Paxton, Nebr	− .006	− .099	+ .004
84. Washington, D. C. (Bureau of Standards)	+ .037	+ .046	+ .057
85. North Hero, Vt	+ .001	− .004	.000
86. Lake Placid, N. Y	+ .006	− .017	+ .046
87. Potsdam, N. Y	+ .021	+ .011	+ .025
88. Wilson, N. Y	− .010	− .014	− .004
89. Alpena, Mich	− .020	− .032	− .012
90. Virginia Beach, Va	− .048	− .015	− .015
91. Durham, N. C	+ .036	+ .045	+ .058
92. Fernandina, Fla	+ .010	+ .036	+ .035
93. Wilmer, Ala	− .044	− .027	− .018
94. Aliceville, Ala	− .017	− .010	− .001
95. New Madrid, Mo	+ .001	+ .001	+ .010
96. Mena, Ark	− .052	− .066	− .029
97. Nacogdoches, Tex	− .012	− .005	+ .004
98. Alpine, Tex	+ .021	− .088	+ .062
99. Farwell, Tex	− .016	− .132	+ .003
100. Guymon, Okla	− .017	− .110	− .010
101. Helenwood, Tenn	+ .040	+ .015	+ .063
102. Cloudland, Tenn	+ .004	− .042	+ .142
103. Hughes, Tenn	− .029	− .074	+ .032
104. Charleston, W. Va	− .024	− .045	− .026
105. State College, Pa	− .021	− .038	− .003
106. Fort Kent, Me	− .013	− .021	− .004
107. Prentice, Wis	+ .024	− .005	+ .042
108. Fergus Falls, Minn	− .006	− .034	+ .003
109. Sheridan, Wyo	+ .032	− .116	+ .009
110. Boulder, Mont	− .015	− .181	− .014
111. Skykomish, Wash	− .028	− .087	− .067
112. Olympia, Wash	+ .033	+ .026	+ .029
113. Heppner, Oreg	− .027	− .093	− .026
114. Truckee, Cal	− .028	− .162	+ .037
115. Winnemucca, Nev	− .009	− .150	− .005
116. Ely, Nev	− .021	− .207	+ .007
117. Guernsey, Wyo	+ .036	− .113	+ .028
118. Pierre, S. Dak	+ .014	− .039	+ .009
119. Fort Dodge, Iowa	+ .015	− .011	+ .025
120. Keithsburg, Ill	− .008	− .018	− .003
121. Grand Rapids, Mich	+ .002	− .008	+ .013
122. Angola, Ind	+ .011	− .001	+ .030
123. Albany, N. Y	− .043	− .048	− .041
124. Port Jervis, N. Y	− .033	− .035	− .022
125. Atlantic City, N. J	− .023	+ .003	+ .003
126. Bridgehampton, N. Y	− .022	+ .005	+ .006
127. Chatham, Mass	− .014	+ .018	+ .018
128. Rockland, Me	− .015	+ .003	+ .004
129. Lancaster, N.H	− .018	− .031	− .003
130. Whitehall, N. Y	− .039	− .047	− .043
131. Little Falls, N. Y	− .024	− .038	− .023
132. Watertown, N. Y	− .025	− .032	− .016
133. Southport, N. Y	− .030	− .047	− .018
134. Erie, Pa	− .027	− .040	− .018
135. Parkersburg, W. Va	− .024	− .042	− .022
136. Columbus, Ohio	− .012	− .028	− .003
137. Indianapolis, Ind	+ .001	− .012	+ .012
138. Springfield, Ill	− .016	− .023	− .003
139. Lebanon, Mo	+ .011	− .012	+ .031
140. Joplin, Mo	+ .016	− .009	+ .025
141. Fort Smith, Ark	− .016	− .030	− .015
142. Texarkana, Ark	+ .011	+ .009	+ .020
143. Hot Springs, Ark	+. 018	+ .009	+ .030
144. Alexandria, La	− .006	+ .008	+ .011
145. Laurel, Miss	+ .014	+ .025	+ .033
146. Richmond, Va	+ .003	+ .018	+ .021
147. Emporia, Va	+ .013	+ .032	+ .036
148. Greenville, N. C	− .018	+ .007	+ .009
149. Wilmington, N. C	− .031	− .001	.000
150. Cheraw, S. C	+ .002	+ .017	+ .023

Anomalies by Hayford, Bouguer, and free-air reductions—Continued.

Number and name of station	Anomaly		
	Hayford, 1912	Bouguer ($g_o''-\gamma_o$)	In free air ($g_o-\gamma_o$)
151. Charlotte, N. C	+0.025	+0.023	+0.048
152. Asheville, N. C	− .005	− .045	+ .029
153. Cleveland, Tenn	− .023	− .041	− .013
154. Winston-Salem, N. C	− .038	− .049	− .018
155. Knoxville, Tenn	− .021	− .045	− .014
156. Bristol, Va	− .015	− .052	+ .005
157. Homestead, Fla	− .036	+ .001	+ .001
158. Sebring, Fla	− .017	+ .011	+ .014
159. Titusville, Fla	− .001	+ .030	+ .030
160. Leesburg, Fla	− .014	+ .012	+ .015
161. Cedar Keys, Fla	− .021	+ .003	+ .003
162. Macon, Ga	+ .019	+ .023	+ .034
163. Albany, Ga	+ .002	+ .015	+ .021
164. Pensacola, Fla	− .014	+ .008	+ .008
165. Opelika, Ala	− .026	− .028	− .001
166. Huntsville, Ala	− .023	− .034	− .012
167. Arkansas City, Ark	− .012	− .004	+ .001
168. Memphis, Tenn	+ .013	+ .015	+ .023
169. Mammoth Spring, Ark	+ .013	+ .002	+ .019
170. Hopkinsville, Ky	+ .006	+ .001	+ .020
171. Danville, Ky	− .030	− .043	− .010
172. Clifton Forge, Va	− .034	− .065	− .029
173. Greenville, Ala	− .011	− .001	+ .013
174. Birmingham, Ala	− .033	− .034	− .014
175. Lexington, Va	− .024	− .047	− .011
176. Prestonsburg, Ky	− .024	− .042	− .020
177. Traverse City, Mich	+ .001	− .009	+ .011
178. Seney, Mich	+ .001	− .008	+ .016
179. Oconto, Wis	− .025	− .038	− .018
180. Grand Rapids, Wis	− .042	− .063	− .029
181. Winona, Minn	+ .015	− .006	+ .017
182. Baldwin, Wis	− .050	− .074	− .036
183. Cumberland, Wis	− .049	− .074	− .033
184. Cambridge, Minn	− .027	− .051	− .017
185. Brainerd, Minn	+ .012	− .018	+ .023
186. Aberdeen, S. Dak	+0.012	−0.029	+0.015
187. Faith, S. Dak	+ .015	− .058	+ .029
188. Marmarth, N. Dak	+ .035	− .051	+ .041
189. Towner, N. Dak	+ .032	− .014	+ .036
190. Crosby, N. Dak	+ .017	− .041	+ .026
191. Crookston, Minn	+ .011	− .016	+ .013
192. Poplar, Mont	+ .019	− .050	+ .018
193. Miles City, Mont	+ .030	− .061	+ .018
194. Huntley, Mont	+ .011	− .105	− .003
195. Lander, Wyo	+ .019	− .182	− .001
196. Faribault, Minn	+ .036	+ .011	+ .044
197. St. James, Minn	+ .006	− .020	+ .016
198. Edgemont, S. Dak	+ .054	− .067	+ .050
199. Dawson, Minn	+ .017	− .014	+ .022
200. Cokato, Minn	+ .006	− .019	+ .017
201. Wasta, S. Dak	+ .030	− .052	+ .025
202. Moorcroft, Wyo	+ .021	− .109	+ .034
203. Duluth, Minn	+ .050	+ .025	+ .048
204. Osage, Iowa	− .026	− .050	− .011
205. Randolph, Nebr	+ .002	− .042	+ .015
206. Valentine, Nebr	+ .018	− .058	+ .030
207. Wheeling, W. Va	− .029	− .047	− .024
208. Leon, Iowa	− .008	− .031	+ .007
209. Laurel, Md	+ .034	+ .043	+ .049
210. Harrisburg, Pa	− .029	− .031	− .019
211. Pittsburg, Pa	− .023	− .041	− .015
212. Rockville, Md	+ .046	+ .053	+ .067
213. Upper Marlboro, Md	+ .013	+ .027	+ .028
214. Fairfax, Va	+ .036	+ .042	+ .055
215. Crisfield, Md	− .029	− .002	− .002
216. Fredericksburg, Va	+ .005	+ .015	+ .017
217. Dover, Del	− .010	+ .010	+ .011
218. North Tamarack, Mich	+ .031	+ .019	+ .059
219. Hagerstown, Md	− .049	− .053	− .035

The mean values of the anomalies with and without regard to sign are shown in the following table:

	Anomaly		
	Hayford, 1912	Bouguer	In free air
Mean with regard to sign 219 stations	−0.003	−0.037	+0.012
Mean without regard to sign 219 stations	.020	.050	[illegible]
Mean with regard to sign 217 stations (Seattle stations omitted)	− .002	− .036	+ .013
Mean without regard to sign 217 stations (Seattle stations omitted)	.019	.049	[illegible]

The mean without regard to sign is much larger by the free air and the Bouguer than the Hayford reductions and for the Bouguer it is so large as to show that the condition upon which it is based, namely, that of a rigid earth, is very far from the truth.

There are only two Hayford anomalies greater than 0.059 dyne, and those are at Seattle, Wash., at stations so close together that they should be considered really only one station. The maximum free-air anomaly is at Pikes Peak, Colo. (No. 43), and is +0.216 dyne. The maximum Bouguer anomaly is −0.229 at Gunnison, Colo. (No. 45).

The following table gives for the three methods the number of anomalies which fall within certain limits:

Number of anomalies of different magnitudes.

Limits of anomalies in dynes	Number of anomalies			Limits of anomalies in dynes	Number of anomalies		
	Hayford, 1912	Bouguer	In free air		Hayford, 1912	Bouguer	In free air
0.200 to 0.300	0	5	1	0.050 to 0.060	8	13	11
.100 to .200	0	31	5	.040 to .050	8	29	18
.090 to .100	2	2	1	.030 to .040	28	28	25
.080 to .090	0	3	0	.020 to .030	54	24	40
.070 to .080	0	4	0	.010 to .020	69	37	52
.060 to .070	0	5	7	.000 to .010	50	38	59

An inspection of the data in this table shows that the anomalies by the Hayford 1912 method are distributed in fair agreement with the law of distribution of accidental errors. There is no indication of any decided systematic error for those anomalies. On the other hand, the distribution of the anomalies by each of the older methods of reduction departs greatly from the law of distribution of accidental errors and indicates that there are substantial systematic errors present.

GRAVITY ANOMALY MAPS.

The 1912 Hayford anomalies for the 219 stations in the United States and the 42 stations in Canada are shown in figure 11. The contours were drawn mechanically. The whole area covered by the stations was laid out in triangles, each triangle having as its apexes three contiguous stations. In all cases where there was a choice those stations were selected which gave most nearly an equiangular triangle. The points on the contours were determined by interpolations along the triangle sides between the stations at their ends. There are several places where sharp angles in the contours were taken out and the contours rounded, but these are of very minor importance.

The map shows no relations between the anomalies and the topography except for coast topography, but it does seem to show some relation between the anomalies and the geologic formation. Along the coast where the geologic formation is generally Cenozoic the anomaly areas are mostly negative. The large area of Paleozoic formation which extends westward from Pennsylvania is mostly negative, while the large Mesozoic and pre-Cambrian areas in the Dakotas, Minnesota, and in Montana and Wyoming tend to be positive. (See fig. 17.)

Figure 15 shows the gravity anomaly contours in the vicinity of the District of Columbia. These are so intricate that they could not be shown well on the small scale of figure 11.

Figure 12 shows the 1916 Hayford anomalies and the gravity contours for the 219 stations in the United States, and figure 16 the 1916 anomalies and contours for the area surrounding the District of Columbia. These two maps differ very little from figures 11 and 15 showing the 1912 contours.

Figure 13 shows the Bouguer anomalies at the 219 stations in the United States and the anomaly contours. Little comment is needed in regard to this map. It was constructed in the same way as the 1912 and 1916 Hayford anomaly maps. It shows in a very impressive manner the close relations between the Bouguer anomalies and the character of the topography.

Figure 14 shows the free-air anomaly contours for the United States. This shows in a striking manner the relation between the free-air anomalies and the elevations of the stations.

Figures 13 and 14 seem to prove conclusively that the earth's crust is not rigid and also that it is not highly plastic. On the other hand, figures 11 and 12 for the Hayford anomalies prove that the condition of isostasy with the compensation distributed to a considerable depth is very near the truth.

AGREEMENT AS TO POSITIVE AND NEGATIVE AREAS DEDUCED FROM GRAVITY AND FROM DEFLECTION DATA.

In figure 18 are shown the 1912 Hayford anomalies for the 219 stations in the United States and the differences between the observed and the computed values of the deflection of the vertical at many astronomic stations used by Hayford.[a] There are also shown a number of ovals inclosing areas in each of which, according to Hayford, the density of the material in the earth's crust is abnormal. They were drawn by him before any results of the gravity reductions were available.

In some of these areas gravity stations have been established, and in no case is there a conflict in the sign of the area as indicated and the sign of the gravity anomaly. There are many of the gravity stations not within these positive and negative areas as shown on the illustation which agree with the deflections of the vertical in their locality.

The two classes of data supplement each other and frequently give a rather definite idea as to the direction from the station of the area under which the cause of a deflection of the vertical is located. For instance, if an arrow in figure 18, which shows by its length the size of the unaccounted-for deflection, is close to a gravity station, the latter being in prolongation of the resultant deflection, the gravity anomaly by its sign will indicate whether the plumb line is attracted in the direction of the arrow or repelled from the opposite side. It may be said that the gravity and deflection data are in general in close accord.

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[a] Supplemental Investigation in 1909 of the Figure of the Earth and Isostasy.

Chapter IV.—RELATION BETWEEN THE GRAVITY ANOMALIES AND THE TOPOGRAPHY.

A severe test of the reasonableness of a method of reduction of gravity stations is whether the anomalies are different in size and sign, on an average, for different characters of topography.

There are given below five tables, for as many different characters of topography, which contain the anomalies by four methods of reduction. The first method may be called the Hayford, 1912. In this method isostasy is considered complete, and the compensation is assumed to be directly under the station and uniformly distributed to a depth of 113.7 km. The formula used in this method for computing the theoretical gravity at a station is what is called the United States Coast and Geodetic Survey 1912 formula, in which the gravity at the equator is given as 978.038 dynes. The reciprocal of the flattening is 1/298.2 (the Helmert value of 1901; see p. 113). The second method is similar to the first one, except that the depth of compensation is 60 km., and the formula used gives a value of gravity at the equator of 978.040 dynes. Each of these methods is based on the theory of isostasy. The values of the depth and the equatorial gravity used in the second method were derived from a solution of all the data in the United States, from which was obtained the United States Coast and Geodetic Survey 1916 formula for the United States. The derivation of this formula is given on page 123.

The third method is the Bouguer, in which topography is considered, but the isostatic compensation is not. It postulates a rigid crust of the earth. The fourth method is the free air, in which neither the topography nor the compensation is taken into account. It postulates a very plastic crust with the compensation at zero depth. The Helmert formula of 1901 was used in computing the theoretical gravity at the latitude of the stations for the Bouguer and the free-air methods.

At the end of the five tables there is given a table of the mean anomalies with and without regard to sign.

HAYFORD, BOUGUER, AND FREE-AIR ANOMALIES, ARRANGED IN GROUPS ACCORDING TO TOPOGRAPHY.

Twenty-seven coast stations, in the order of their distances from the 1000-fathom line.

Number and name of station	Distance from 1000-fathom line	Anomaly.			
		Hayford, 1912; depth, 113.7 km	Hayford, 1916; depth, 60.0 km	Bouguer ($g_0''-\gamma_0$)	In free air ($g_0-\gamma_0$)
	Kilometers				
54. San Francisco, Cal	85	−0.023	−0.010	+0.019	+0.030
18. Beaufort, N. C	95	− .021	− .008	+ .023	+ .023
80. Astoria, Oreg	120	− .013	− .010	+ .003	+ .003
90. Virginia Beach, Va	130	− .048	− .039	− .015	− .015
92. Fernandina, Fla	145	+ .010	+ .015	+ .036	+ .035
1. Key West, Fla	150	+ .005	+ .015	+ .048	+ .048
125. Atlantic City, N. J	160	− .023	− .018	+ .003	+ .003
8. Point Isabel, Tex	160	+ .027	+ .030	+ .049	+ .050
126. Bridgehampton, N. Y	180	− .022	− .016	+ .005	+ .006
215. Crisfield, Md	185	− .029	− .023	− .002	− .002
149. Wilmington, N. C	190	− .031	− .024	− .001	.000
164. Pensacola, Fla	190	− .014	− .010	+ .008	+ .008
127. Chatham, Mass	195	− .014	− .007	+ .018	+ .018
5. New Orleans, La	210	− .013	− .010	+ .008	+ .008
4. Apalachicola, Fla	225	.000	+ .004	+ .023	+ .023
27. New York, N. Y	225	+ .022	+ .025	+ .037	+ .041
26. Hoboken, N. J	230	+ .024	+ .027	+ .039	+ .040
66. Compton, Cal	230	− .050	− .049	− .041	− .042
2. West Palm Beach, Fla	243	+ .018	+ .027	+ .057	+ .057
161. Cedar Keys, Fla	260	− .021	− .016	+ .003	+ .003
3. Punta Gorda, Fla	280	+ .010	+ .017	+ .038	+ .038
29. Boston, Mass	300	+ .005	+ .008	+ .024	+ .026
30. Cambridge, Mass	300	+ .005	+ .009	+ .022	+ .023
17. Charleston, S. C	305	− .021	− .016	+ .003	+ .003
7. Galveston, Tex	330	− .009	− .008	+ .006	+ .006
159. Titusville, Fla	330	− .001	+ .007	+ .030	+ .030
128. Rockland, Me	350	− .015	− .013	+ .003	+ .004
Mean with regard to sign		− .009	− .003	+ .017	+ .017
Mean without regard to sign		.018	.017	.021	.022

Forty-six stations near the coast, in the order of their distances from the open coast.

Number and name of station	Distance from the open coast	Anomaly			
		Hayford, 1912; depth, 113.7 km	Hayford, 1916; depth, 60 km	Bouguer ($g_0''-\gamma_0$)	In free air ($g_0-\gamma_0$)
	Kilometers				
157. Homestead, Fla	20	−0.036	−0.028	+0.001	+0.001
31. Calais, Me	50	− .008	− .007	+ .006	+ .010
25. Princeton, N. J	60	− .019	− .016	− .004	+ .002
93. Wilmer, Ala	65	− .044	− .042	− .027	− .018
217. Dover, Del	65	− .010	− .006	+ .010	+ .011
23. Baltimore, Md	75	− .011	− .008	.000	+ .003
28. Worcester, Mass	85	− .020	− .015	− .014	+ .006
160. Leesburg, Fla	85	− .014	− .008	+ .012	+ .015
24. Philadelphia, Pa	90	+ .022	+ .025	+ .037	+ .039
124. Port Jervis, N. Y	100	− .033	− .027	− .035	− .022
158. Sebring, Fla	110	− .017	− .010	+ .011	+ .014
148. Greenville, N. C	130	− .018	− .012	+ .007	+ .009
81. Sisson, Cal	142	− .010	+ .009	− .103	+ .013
147. Emporia, Va	145	+ .013	+ .016	+ .032	+ .036
150. Cheraw, S. C	150	+ .002	+ .005	+ .017	+ .023
146. Richmond, Va	150	+ .003	+ .005	+ .018	+ .021
213. Upper Marlboro, Md	150	+ .013	+ .016	+ .027	+ .028
173. Greenville, Ala	160	− .011	− .009	− .001	+ .013
209. Laurel, Md	160	+ .034	+ .036	+ .043	+ .049
21. Washington, D. C. (Coast and Geodetic Survey office)	170	+ .037	+ .038	+ .048	+ .049
22. Washington, D. C. (Smithsonian Institution)	170	+ .039	+ .040	+ .049	+ .050
163. Albany, Ga	170	+ .002	+ .005	+ .015	+ .021
145. Laurel, Miss	170	+ .014	+ .016	+ .025	+ .033
84. Washington, D. C. (Bureau of Standards)	175	+ .037	+ .039	+ .046	+ .057
216. Fredericksburg, Va	180	+ .005	+ .007	+ .015	+ .017
144. Alexandria, La	190	− .006	− .005	+ .008	+ .011
212. Rockville, Md	190	+ .046	+ .048	+ .053	+ .067
214. Fairfax, Va	200	+ .036	+ .037	+ .042	+ .055
91. Durham, N. C	210	+ .036	+ .038	+ .045	+ .058
9. Laredo, Tex	215	− .020	− .022	− .022	− .009
65. Yuma, Ariz	220	+ .009	+ .006	+ .001	+ .007
97. Nacogdoches, Tex	220	− .012	− .013	− .005	+ .005
123. Albany, N. Y	220	− .043	− .041	− .048	− .041
16. McCormick, S. C	235	+ .015	+ .017	+ .017	+ .035
10. Austin, Tex. (capitol)	245	− .008	− .008	− .021	− .003
11. Austin, Tex. (university)	245	− .010	− .010	− .023	− .003
19. Charlottesville, Va	250	− .013	− .011	− .021	− .003
151. Charlotte, N. C	250	+ .025	+ .029	+ .023	+ .048
219. Hagerstown, Md	250	− .049	− .046	− .053	− .035
162. Macon, Ga	265	+ .019	+ .021	+ .023	+ .034
165. Opelika, Ala	265	− .026	− .020	− .028	− .001
32. Ithaca, N. Y	305	− .023	− .020	− .033	− .010
94. Aliceville, Ala	305	− .017	− .017	− .010	− .001
62. Kerrville, Tex	310	+ .031	+ .035	− .003	+ .052
106. Fort Kent, Me	315	− .013	− .014	− .021	− .004
6. Rayville, La	325	+ .016	+ .017	+ .029	+ .032
Mean with regard to sign		− .001	+ .002	+ .004	+ .017
Mean without regard to sign		.021	.020	.025	.023

Eighty-eight stations in the interior and not in mountainous regions, arranged in the order of elevation.

Number and name of station	Elevation	Anomaly.			
		Hayford, 1912; depth, 113.7 km	Hayford, 1916; depth, 60 km	Bouguer ($g_0''-\gamma_0$)	In free air ($g_0-\gamma_0$)
	Meters				
167. Arkansas City, Ark	44	−0.012	−0.012	−0.004	+0.001
95. New Madrid, Mo	79	+ .001	− .002	+ .001	+ .010
168. Memphis, Tenn	80	+ .013	+ .012	+ .015	+ .023
88. Wilson, N. Y	87	− .010	− .013	− .014	− .004
13. Little Rock, Ark	89	+ .030	+ .027	+ .030	+ .039
142. Texarkana, Ark	99	+ .011	+ .009	+ .009	+ .020
87. Potsdam, N. Y	130	+ .021	+ .021	+ .011	+ .025
141. Fort Smith, Ark	135	− .016	− .018	− .030	− .015
132. Watertown, N. Y	147	− .025	− .024	− .032	− .016
35. Terre Haute, Ind	151	− .009	− .010	− .016	[illegible]
38. St. Louis, Mo	154	− .005	− .007	− .014	+ .004
169. Mammoth Spring, Ark	156	+ .013	+ .013	+ .002	+ .019
120. Keithsburg, Ill	167	− .006	− .008	− .018	− .003
170. Hopkinsville, Ky	176	+ .006	+ .007	+ .001	+ .020
89. Alpena, Mich	178	− .029	− .019	− .032	− .012

Eighty-eight stations in the interior and not in mountainous regions, arranged in the order of elevation—Continued.

Number and name of station	Elevation	Anomaly			
		Hayford, 1912; depth, 113.7 km	Hayford, 1916; depth, 60 km	Bouguer $(g_0''-\gamma_0)$	In free air $(g_0-\gamma_0)$
	Meters				
174. Birmingham, Ala	179	−0.033	−0.030	−0.034	−0.014
177. Traverse City, Mich	180	+ .001	.000	− .009	+ .011
179. Oconto, Wis	181	− .025	− .027	− .038	− .018
36. Chicago, Ill	182	− .007	− .009	− .012	+ .008
138. Springfield, Ill	183	− .016	− .017	− .023	− .003
104. Charleston, W. Va	184	− .024	− .024	− .045	− .026
135. Parkersburg, W. Va	185	− .024	− .023	− .042	− .022
143. Hot Springs, Ark	190	+ .018	+ .018	+ .009	+ .030
134. Erie, Pa	198	− .027	− .027	− .040	− .018
166. Huntsville, Ala	200	− .023	− .021	− .034	− .012
181. Winona, Minn	201	+ .015	+ .015	− .006	+ .017
207. Wheeling, W. Va	205	− .029	− .026	− .047	− .024
14. Columbia, Tenn	207	+ .026	+ .028	+ .017	+ .040
33. Cleveland, Ohio	210	− .003	− .003	− .016	+ .005
203. Duluth, Minn	216	+ .050	+ .049	+ .025	+ .048
137. Indianapolis, Ind	217	+ .001	+ .002	− .012	+ .012
178. Seney, Mich	223	+ .001	+ .002	− .008	+ .016
73. Denison, Tex	230	+ .005	+ .004	− .012	+ .012
136. Columbus, Ohio	231	− .012	− .011	− .028	− .003
211. Pittsburg, Pa	235	− .023	− .022	− .041	− .015
121. Grand Rapids, Mich	236	+ .002	+ .002	− .008	+ .013
12. McAlester, Okla	240	− .027	− .028	− .045	− .018
59. Pembina, N. Dak	243	+ .019	+ .015	− .008	+ .018
34. Cincinnati, Ohio	245	− .019	− .019	− .034	− .009
74. Minneapolis, Minn	[illegible]	+ .059	+ .057	+ .034	+ .062
191. Crookston, N. Dak	260	+ .011	+ .008	− .016	+ .013
133. Southport, N. Y	266	− .030	− .024	− .047	− .018
37. Madison, Wis	270	− .005	− .005	− .024	+ .006
39. Kansas City, Mo	278	− .016	− .018	− .038	− .009
154. Winston-Salem, N. C	284	− .038	− .034	− .049	− .018
171. Danville, Ky	300	− .030	− .026	− .043	− .010
196. Faribault, Minn	301	+ .036	+ .035	+ .011	+ .044
140. Joplin, Mo	303	+ .016	+ .016	− .009	+ .025
184. Cambridge, Minn	303	− .027	− .028	− .051	− .017
180. Grand Rapids, Wis	306	− .042	− .042	− .063	− .029
122. Angola, Ind	318	+ .011	+ .012	− .001	+ .030
200. Cokato, Minn	319	+ .006	+ .005	− .019	+ .017
199. Dawson, Minn	323	+ .017	+ .015	− .014	+ .022
15. Atlanta, Ga	324	− .023	− .021	− .036	− .001
197. St. James, Minn	330	+ .006	+ .005	− .020	+ .016
119. Fort Dodge, Iowa	340	+ .015	+ .013	− .011	+ .025
182. Baldwin, Wis	342	− .050	− .051	− .074	− .036
208. Leon, Iowa	344	− .008	− .008	− .031	+ .007
204. Osage, Iowa	356	− .026	− .025	− .050	− .011
108. Fergus Falls, Minn	366	− .006	− .008	− .034	+ .003
185. Brainerd, Minn	367	+ .012	+ .012	− .018	+ .023
96. Mena, Ark	368	− .052	− .051	− .066	− .029
218. North Tamarack, Mich	370	+ .031	+ .031	+ .019	+ .059
183. Cumberland, Wis	380	− .049	− .048	− .074	− .033
139. Lebanon, Mo	385	+ .011	+ .012	− .012	+ .031
186. Aberdeen, S. Dak	396	+ .012	+ .009	− .029	+ .015
60. Mitchell, S. Dak	[illegible]	+ .001	− .003	− .040	+ .003
58. Ely, Minn	448	+ .023	+ .023	− .010	+ .039
189. Towner, N. Dak	451	+ .032	+ .030	− .014	+ .036
118. Pierre, S. Dak	454	+ .014	+ .009	− .039	+ .009
57. Iron River, Mich	458	+ .038	+ .041	+ .009	+ .060
40. Ellsworth, Kans	469	+ .014	+ .012	− .029	+ .016
107. Prentice, Wis	[illegible]	+ .024	+ .026	− .005	+ .042
205. Randolph, Nebr	515	+ .002	.000	− .042	+ .015
76. Bismarck, N. Dak	516	+ .002	.000	− .052	+ .005
190. Crosby, N. Dak	598	+ .017	+ .015	− .041	+ .026
192. Poplar, Mont	608	+ .019	+ .015	− .050	+ .018
61. Sweetwater, Tex	655	− .029	− .028	− .084	− .012
77. Hinsdale, Mont	661	+ .029	+ .024	− .053	+ .020
72. Shamrock, Tex	708	+ .032	+ .034	− .031	+ .047
193. Miles City, Mont	718	+ .030	+ .028	− .061	+ .018
206. Valentine, Nebr	785	+ .018	+ .020	− .058	+ .030
187. Faith, S. Dak	786	+ .015	+ .014	− .058	+ .029
188. Marmarth, N. Dak	822	+ .035	+ .036	− .051	+ .041
83. Paxton, Nebr	932	− .006	− .005	− .099	+ .004
100. Guymon, Okla	[illegible]	− .017	− .016	− .110	− .010
41. Wallace, Kans	1005	− .012	− .009	− .105	− .004
99. Farwell, Tex	1259	− .016	− .013	− .132	+ .003
Mean with regard to sign		− .001	− .001	− .028	+ .009
Mean without regard to sign		.019	.019	.033	.020

Thirty-six stations in mountainous regions and below the general level, arranged in the order of their distances below the general level.

Number and name of station	Average elevation within 100 miles of station minus elevation of station	Elevation of station	Anomaly			
			Hayford, 1912; depth, 113.7 km	Hayford, 1916; depth, 60 km	Bouguer ($g_0''-\gamma_0$)	In free air ($g_0-\gamma_0$)
	Meters	*Meters*				
70. Gallup, N. Mex	30	1990	−0.013	−0.001	−0.211	+0.009
156. Bristol, Va	32	514	− .015	− .007	− .052	+ .005
105. State College, Pa	33	358	− .021	− .017	− .038	− .003
202. Moorcroft, Wyo	52	1295	+ .021	+ .024	− .109	+ .034
67. Goldfield, Nev	112	1716	− .013	− .001	− .166	+ .022
153. Cleveland, Tenn	123	[illegible]	− .023	− .020	− .041	− .013
210. Harrisburg, Pa	125	104	− .029	− .027	− .031	− .019
175. Lexington, Va	126	324	− .024	− .019	− .047	− .011
172. Clifton Forge, Va	157	325	− .034	− .027	− .065	− .029
85. North Hero, Vt	167	35	+ .001	− .002	− .004	.000
176. Prestonsburg, Ky	180	193	− .024	− .022	− .042	− .020
131. Little Falls, N. Y	198	137	− .024	− .021	− .038	− .023
155. Knoxville, Tenn	200	280	− .021	− .019	− .045	− .014
201. Wasta, S. Dak	201	706	+ .030	+ .026	− .052	+ .025
63. El Paso, Tex	205	1146	+ .007	+ .010	− .111	+ .016
198. Edgemont, S. Dak	208	1066	+ .054	+ .054	− .067	+ .050
113. Heppner, Oreg	264	598	− .027	− .030	− .093	− .026
130. Whitehall, N. Y	290	38	− .039	− .037	− .047	− .043
112. Olympia, Wash	306	19	+ .033	+ .029	+ .026	+ .029
110. Boulder, Mont	307	1493	− .015	− .006	− .181	− .014
111. Skykomish, Wash	322	280	− .028	− .019	− .087	− .067
117. Guernsey, Wyo	324	1322	+ .036	+ .035	− .113	+ .028
115. Winnemucca, Nev	346	1311	− .009	− .006	− .150	− .005
109. Sheridan, Wyo	378	1150	+ .032	+ .035	− .116	+ .009
82. Rock Springs, Wyo	379	1910	+ .013	+ .020	− .191	+ .020
45. Gunnison, Colo	380	2340	+ .020	+ .037	− .229	+ .027
194. Huntley, Mont	385	919	+ .011	+ .007	− .105	− .003
42. Colorado Springs, Colo	420	1841	− .007	+ .003	− .188	− .006
195. Lander, Wyo	536	1635	+ .019	+ .024	− .182	− .001
49. Salt Lake City, Utah	570	1322	+ .010	+ .011	− .146	− .023
44. Denver, Colo	574	1638	− .016	− .016	− .182	− .023
79. Boise, Idaho	575	821	+ .008	+ .002	− .117	− .026
78. Sandpoint, Idaho	588	637	+ .002	.000	− .105	− .034
69. Grand Canyon, Ariz	824	849	− .010	− .001	− .173	− .098
46. Grand Junction, Colo	850	1398	+ .024	+ .024	− .158	− .019
47. Green River, Utah	870	1243	− .021	− .026	− .180	− .056
Mean with regard to sign			− .003	.000	− .107	− .008
Mean without regard to sign			.020	.018	.108	.024

Twenty stations in mountainous regions and above the general level, arranged in the order of their distances above the general level.

Number and name of station	Elevation of station minus average elevation within 100 miles	Elevation of station	Anomaly			
			Hayford, 1912; depth, 113.7 km	Hayford, 1916; depth, 60 km	Bouguer ($g_0''-\gamma_0$)	In free air ($g_0-\gamma_0$)
	Meters.	*Meters.*				
129. Lancaster, N. H	1	251	−0.018	−0.011	−0.031	−0.003
71. Las Vegas, N. Mex	18	1960	+ .003	+ .016	− .189	+ .028
116. Ely, Nev	19	1962	− .021	− .003	− .207	+ .007
101. Helenwood, Tenn	33	422	+ .040	+ .045	+ .015	+ .063
52. Lower Geyser Basin, Wyo	63	2200	− .001	+ .015	− .193	+ .035
51. Norris Geyser Basin, Wyo	139	2276	+ .021	+ .038	− .177	+ .060
48. Pleasant Valley Junction, Utah	147	2191	+ .004	+ .021	− .187	+ .036
152. Asheville, N. C	180	670	− .005	+ .009	− .045	+ .029
50. Grand Canyon, Wyo	249	2386	− .002	+ .017	− .208	+ .044
98. Alpine, Tex	265	1359	+ .021	+ .034	− .088	+ .062
64. Nogales, Ariz	288	1181	− .050	− .040	− .132	− .004
20. Deer Park, Md	291	770	+ .010	+ .022	− .019	+ .059
[illegible]. Lake Placid, N. Y	306	571	+ .006	+ .016	− .017	+ .046
103. Hughes, Tenn	427	994	− .029	− .012	− .074	+ .032
75. Lead, S. Dak	468	1590	+ .052	+ .062	− .072	+ .104
68. Yavapai, Ariz	512	2179	+ .001	+ .012	− .162	+ .043
114. Truckee, Cal	512	1805	− .028	.000	− .162	+ .037
55. Mount Hamilton, Cal	1202	1282	− .003	+ .013	+ .003	+ .125
[illegible]. Cloudland, Tenn	1324	1890	+ .004	+ .021	− .042	+ .142
43. Pikes Peak, Colo	2035	4293	+ .021	+ .045	− .204	+ .216
Mean with regard to sign			+ .001	+ .016	− .110	+ .058
Mean without regard to sign			.017	.022	.111	.059

Mean anomalies.

WITH REGARD TO SIGN.

	Number of stations	Mean anomaly.			
		Hayford, 1912; depth, 113.7 km	Hayford, 1916; depth, 60 km	Bouguer	In free air
Coast stations	27	−0.009	−0.003	+0.017	+0.017
Stations near the coast	46	− .001	+ .002	+ .004	+ .017
Stations in the interior, not in mountainous regions	88	− .001	− .001	− .028	+ .009
Stations in mountainous regions, below the general level	36	− .003	.000	− .107	− .008
Stations in mountainous regions, above the general level	20	+ .001	+ .016	− .110	+ .058
All stations (except the two Seattle stations)	217	− .002	+ .001	− .036	+ .013

WITHOUT REGARD TO SIGN.

	Number of stations	Hayford, 1912; depth, 113.7 km	Hayford, 1916; depth, 60 km	Bouguer	In free air
Coast stations	27	0.018	0.012	0.021	0.022
Stations near the coast	46	.021	.020	.025	.023
Stations in the interior, not in mountainous regions	88	.019	.019	.033	.020
Stations in mountainous regions, below the general level	36	.020	.018	.108	.024
Stations in mountainous regions, above the general level	20	.017	.022	.111	.059
All stations (except the two Seattle stations)	217	.019	.019	.049	.025

Anomalies for all stations treated as a single group.

	Anomaly			
	Hayford, 1912; depth, 113.7 km	Hayford, 1916; depth, 60 km	Bouguer	In free air
Mean with regard to sign, 219 stations	−0.003	0.000	−0.037	+0.012
Mean without regard to sign, 219 stations	.020	.020	.050	.026
Mean with regard to sign, 217 stations (Seattle stations omitted)	− .002	+ .001	− .036	+ .013
Mean without regard to sign, 217 stations (Seattle stations omitted)	.019	.019	.049	.025

The mean anomalies with regard to sign for the Bouguer reduction show a remarkable range in values from +0.017 dyne for the coast stations to −0.110 dyne for stations in mountainous regions which are above the general level. The other classes of topography have mean Bouguer values which fall between these extremes. The value which is nearest zero is for the stations near but not on the coast; that is, on the coastal plains. The effect of ignoring the compensation here should have little effect as the topography is in general very low. We may conclude that there are decided relations between the Bouguer anomalies and the character of the topography. Therefore it is certain that the earth's crust is not rigid with the oceans and continents held in place as a result of its rigidity. The Bouguer method is certainly not based upon correct principles.

The free-air anomalies have means with regard to sign for the five topographic groups which range from −0.008 for mountain stations below the general level to +0.058 for those mountain stations which are above the general level. The coast stations and those near but not on the coasts have mean anomalies, with sign considered, of +0.017. The stations in the interior not in mountain regions have a mean of +0.009. If the mean of the 1912 and 1916 values for the gravity at the equator, which is 0.009 dyne greater than the Helmert 1901 value, had been used, the mean of the anomalies by the free-air method for the stations in the interior and not in mountainous regions would have been zero. This is as one might expect, for the effects of the distant topography and compensation are not large (see tables on pp. 20 to 48) and the effect of the near topography on a plain is almost exactly balanced by the isostatic compensation. It is a fact which should be kept in mind when studying the effect of topography and isostatic compensation that the attractive effect of a mass of uniform density, of great horizontal extent, and of a uniform thickness is the same as for a mass of a much greater thickness, with a correspondingly smaller density and the same great horizontal extent. As an example, a disk of material 100 feet thick of density 2.67 and 1000 miles in horizontal radius will have practically the same attraction as a mass 100 000 feet thick with a density of 0.00267 and as before 1000 miles in horizontal dimensions from the center of the disk. Therefore we have the attractive effect of the topography of a plain of great dimensions exactly or nearly balanced by the effect of the compensation. (See p. 72.)

The mean of the 1912 Hayford anomalies with regard to sign is only −0.002 (omitting the Seattle stations) and the mean value for each of the five topographic groups is small except one. The mean of the coast station anomalies is −0.009. This mean anomaly may be explained in part by the fact that nearly all the material along the coasts belongs to the Cenozoic or recent formation, and authorities give its density as ranging from 2.40 to 2.50. (See table on p. 215 of "The Strength of the Earth's Crust" by Joseph Barrell in Volume XXII of Journal of Geology.) This material is no doubt of considerable thickness at many parts of the coasts. It is shown on pages 70 to 83 under the heading "Relation between the gravity anomalies and the geologic formation" that the presence of light material in the earth's crust near a station would tend to make the computed value of gravity too great and the difference between the observed and computed values would tend to be negative. If we should eliminate from consideration the coast stations or assume that the value −0.009 is explained by the presence of the Cenozoic material, then the mean with regard to sign of the anomalies for the various topographic groups is never more than 0.003 dyne from the mean for all stations, and three of the groups have means which are only 0.001 from the mean of all. The total range in the means with regard to sign for the various groups, ignoring coast stations, is only 0.004 dyne. This is very different from the range in the means for the Bouguer and the free-air anomalies. It shows that this method is very much closer to the truth.

The means for the Hayford 1912 anomalies for the various groups without regard to sign vary only slightly. The lowest is 0.017 for mountain stations above the general level, and the largest is 0.021 for stations near but not on the coast. The mean for all is 0.019. The mean of the Bouguer anomalies without regard to sign for the several groups varies from 0.021 for coast stations to 0.111 for stations in mountainous regions above the general level, while the free-air anomalies vary from 0.022 at coast stations to 0.059 at stations in mountainous regions above the general level.

We must conclude that the average size of the anomalies without regard to sign indicates that there is no relation between the Hayford 1912 anomalies and the topography.

The Hayford 1916 anomalies give substantially the same evidence in favor of isostasy that is given by the 1912 anomalies, but it is difficult to see which method of reduction is nearer the truth.

The mean value for the 1916 anomalies with regard to sign for 217 stations is +0.001. The mean anomaly for the coast stations is −0.003, which is different from the mean by 0.004. For the 1912 anomalies the mean coast anomaly differs 0.007 from the mean of all, which is −0.002. This may be considered as being in favor of a depth of 60 km. as against the depth of 113.7 km. But, as stated above, and also on pages 76 and 77, the material near the coast belongs in general to the Cenozoic geologic formation which is less dense than normal (2.67). The presence of this less dense material makes the computed value of gravity too great and the anomalies negative. The effect of reducing the depth of compensation to 60 km. is to give the compensation of the oceans less effect at the coast stations, the computed gravity is less, and the negative anomalies are reduced in size on an average. It is questionable whether the reduced size of the mean anomaly with regard to sign for the 1916 reduction is evidence in favor of the reduced depth of compensation.

The means with regard to sign for the 1916 anomalies in the groups near the coast, in the interior not in the mountainous regions, and in mountainous regions below the general level, are practically the same as for the 1912 anomalies. Hence there is little evidence from these in favor of either reduction.

There is a decided difference between the mean with regard to sign for the 1912 and 1916 anomalies at stations in mountainous regions above the general level. The former is only +0.001, which shows no systematic error, while the latter is +0.016, which, on the other hand, shows a great systematic error.

The change in depth from 113.7 km. to 60 km. does not make a material difference in the effect of the compensation for the stations in mountainous regions below the general level if there is local compensation of the mountain masses. (See p. 108.) The table of individual values for the anomalies on page 66 shows that for this class of topography the anomalies are nearly the same for the 1912 and the 1916 reductions.

The table on page 66 for stations above the general level in mountainous regions shows that there is little or no similarity between the anomalies by the 1912 and 1916 methods. For the first method there are 9 stations of the 20 with negative anomalies, while for the latter there are only 4. There are only 3 of the 1912 anomalies above 0.030, while there are 6 of the 1916 anomalies.

If there is local compensation, then the effect of reducing the depth is to make the effect (negative) of the compensation greater and the computed value of gravity at a mountainous station less. The sign of the anomaly would in consequence tend to be positive. This is what we find to be the case. If the compensation is regional, then the effect of changing the depth of compensation is smaller than if the compensation were local.

It is believed that from the above evidence the conclusion may be drawn that the depth of 113.7 km. is nearer the truth than 60 km. in mountainous regions, and that local distribution of the compensation is more probable than the regional if the latter distribution extends to great distances from the topographic features. This agrees with the evidence given under the heading "Regional versus local distribution of compensation." (See pp. 85 to 92.) The data and discussion on pages 97 to 131 in connection with the anomalies for various depths should be considered in connection with the data given above.

It is believed that the further conclusions may be justified, that there is a relation between the coast topography and the gravity anomalies by the 1912 reduction, this relation probably being due to the lighter material in the earth's crust below sea level, and that there is also a relation between the topography and the gravity anomalies at stations in mountainous regions above the general level for the 1916 method, this relation being explained by the erroneous depth of compensation for this method (60 km.).

Chapter V.—RELATION BETWEEN THE GRAVITY ANOMALIES AND THE GEOLOGIC FORMATION.

Surface densities are known to differ somewhat from the mean surface density and these differences will sometimes occur over large areas. They should cause, therefore, some variation of the value of the intensity of gravity from the normal. As the surface densities vary somewhat for the different geologic formations, a study was made to learn whether there is any relation between the Hayford gravity anomalies and the surface geology at the stations. On page 215 of the Journal of Geology (Vol. XXII, 1914) Barrell gives the following estimated mean specific gravities of geologic formations;

Pre-Cambrian	2. 75–2. 80
Paleozoic and Mesozoic	2. 50–2. 60
Cenozoic	2. 40–2. 50

The author presents the data in the tables following, which may be used as the basis for investigation by others who are interested in this subject. The tables give data for the 219 stations in the United States, 42 stations in Canada, and 73 stations in India. For all of these stations the 1912 Hayford anomalies have been computed and are given.

The stations in the United States and in Canada were plotted on the geologic map of North America which bears the following title: "Geologic map of North America, compiled by the United States Geological Survey in cooperation with the Geological Survey of Canada and Instituto Geologico de Mexico, under the supervision of Bailey Willis and George W. Stose, Scale 1:5 000 000, 1911." The decision as to the surface geologic formation on which the stations are located was based entirely on this map. It is probable that the classification would differ occasionally if other sources of information were used. The writer believes, however, that only minor changes would be made in the tables given below and the conclusions drawn from them would not be materially changed.

The Indian stations were plotted on a geologic map taken from the pocket at the back of "A manual of the geology of India," by Medlicott and Blanford, second edition, revised by Oldham, superintendent Geological Survey of India, 1893.

The tables give the stations and the Hayford 1912 anomalies for each of the formations, (1) pre-Cambrian, (2) Paleozoic, (3) Mesozoic, (4) Cenozoic, (5) Effusive and Intrusive, and (6) unclassified.

In the tables for the United States the 1912 and 1916 Hayford anomalies are given. The former are based upon the United States Coast and Geodetic Survey formula of 1912, viz,

$$\gamma_0 = 978.038\ (1 + 0.005302 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$

which gives the value of gravity for any latitude at sea level. The compensation was assumed to be uniformly distributed and complete at a depth of 113.7 km. The 1916 values are based upon the United States Coast and Geodetic Survey formula of 1916 (see p. — of this volume) viz,

$$\gamma_0 = 978.040\ (1 + 0.005302 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$

and upon a depth of isostatic compensation of 60 km.

The relations between the gravity anomalies and the geologic formations in Canada and India are considered later (pp. 80 to 82). The anomalies given for these countries are comparable with those shown in the following table for the 1912 formula and depth of compensation. It will be shown later in what measure the relations for the stations in those countries confirm or negative those in the United States.

RELATION BETWEEN THE GRAVITY ANOMALIES AND THE GEOLOGIC FORMATION FOR STATIONS IN THE UNITED STATES.

Stations in the United States and Hayford anomalies for specified formations.

Formation and station number	Hayford anomaly	
	1912	1916
Pre-Cambrian formation:		
16	+0.015	+0.017
24	+ .022	+ .025
43	+ .021	+ .045
45	+ .020	+ .037
57	+ .038	+ .041
58	+ .023	+ .023
75	+ .052	+ .062
102	+ .004	+ .021
107	+ .024	+ .026
152	− .005	+ .009
165	− .026	− .020
185	+ .012	+ .012
191	+ .011	+ .008
203	+ .050	+ .049
Paleozoic formation:		
12	− .027	− .028
14	+ .026	+ .028
20	+ .010	+ .022
29	+ .005	+ .008
30	+ .005	+ .009
32	− .023	− .020
33	− .003	− .003
34	− .019	− .019
35	− .009	− .010
36	− .007	− .009
37	− .005	− .005
38	− .005	− .007
39	− .016	− .018
59	+ .019	+ .015
61	− .029	− .028
72	+ .032	+ .034
74	+ .059	+ .057
78	+ .002	.000
85	+ .001	− .002
88	− .010	− .013
89	− .020	− .019
96	− .052	− .051
101	+ .040	+ .045
104	− .024	− .024
105	− .021	− .017
106	− .013	− .014
119	+ .015	+ .013
120	− .008	− .008
121	+ .002	+ .002
122	+ .011	+ .012
123	− .043	− .041
124	− .033	− .027
128	− .015	− .013
129	− .018	− .011
130	− .039	− .037
131	− .024	− .021
132	− .025	− .024
133	− .030	− .024
134	− .027	− .027
135	− .024	− .023
136	− .012	− .011
137	+ .001	+ .002
138	− .016	− .017
139	+ .011	+ .012
140	+ .016	+ .016
141	− .016	− .018
143	+ .018	+ .018
153	− .023	− .020
155	− .021	− .019
156	− .015	− .007
166	− .023	− .021
169	+ .013	+ .013
170	+ .006	+ .007
171	− .030	− .026
172	− .034	− .027
174	− .033	− .030
175	− .024	− .019
176	− .024	− .022
177	+ .001	.000
178	+ .001	+ .002
Paleozoic formation—Con.		
179	−0.025	−0.027
181	+ .015	+ .015
182	− .050	− .051
183	− .049	− .048
184	− .027	− .028
196	+ .036	+ .035
204	− .026	− .025
207	− .029	− .026
208	− .008	− .008
210	− .029	− .027
211	− .023	− .022
219	− .049	− .046
Mesozoic formation:		
10	− .008	− .008
11	− .010	− .010
23	− .011	− .008
25	− .019	− .016
40	+ .014	+ .012
42	− .007	+ .003
46	+ .024	+ .024
47	− .021	− .026
54	− .023	− .010
55	− .003	+ .013
60	+ .001	− .003
62	+ .031	+ .035
70	− .013	− .001
71	+ .003	+ .016
73	+ .005	+ .004
77	+ .029	+ .024
91	+ .036	+ .038
94	− .017	− .017
108	− .006	− .008
118	+ .014	+ .009
150	+ .002	+ .005
162	+ .019	+ .021
186	+ .012	+ .009
187	+ .015	+ .014
188	+ .035	+ .036
189	+ .032	+ .030
192	+ .019	+ .015
193	+ .030	+ .028
194	+ .011	+ .007
195	+ .019	+ .024
197	+ .006	+ .005
198	+ .054	+ .054
200	+ .006	+ .005
201	+ .030	+ .026
202	+ .021	+ .024
216	+ .005	+ .007
Cenozoic formation:		
1	+ .005	+ .015
2	+ .018	+ .027
3	+ .010	+ .017
4	.000	+ .004
5	− .013	− .010
6	+ .016	+ .017
7	− .009	− .008
8	+ .027	+ .030
9	− .020	− .022
17	− .021	− .016
18	− .021	− .008
44	− .016	− .016
53 56	− .093	− .100
63	+ .007	+ .010
64	− .050	− .040
65	+ .009	+ .006
66	− .050	− .049
76	+ .002	.000
79	+ .008	+ .002
80	− .013	− .010
82	+ .013	+ .020
83	− .006	− .005
90	− .048	− .039
92	+ .010	+ .015
Cenozoic formation—Con.		
93	−0.044	−0.042
95	+ .001	− .002
97	− .012	− .013
99	− .016	− .013
100	− .017	− .016
109[a]	+ .032	+ .035
112	+ .033	+ .029
115	− .009	− .006
117[a]	+ .036	+ .035
125	− .023	− .018
126	− .022	− .016
127	− .014	− .007
142	+ .011	+ .009
144	− .006	− .005
145	+ .014	+ .016
148	− .018	− .012
149	− .031	− .024
157	− .036	− .026
158	− .017	− .010
159	− .001	+ .007
160	− .014	− .008
161	− .021	− .016
163	+ .002	+ .005
164	− .014	− .010
167	− .012	− .012
168	+ .013	+ .012
190	+ .017	+ .015
206	+ .018	+ .020
213	+ .013	+ .016
215	− .029	− .023
217	− .010	− .006
Intrusive formation:		
28	− .020	− .015
31	− .008	− .007
86	+ .006	+ .016
103	− .029	− .012
111	− .028	− .019
151	+ .025	+ .029
154	− .038	− .034
Effusive formation:		
50	− .002	+ .017
51	+ .021	+ .038
52	− .001	+ .015
81	− .010	+ .009
98	+ .021	+ .034
110	− .015	− .006
113	− .027	− .030
114	− .028	.000
Unclassified:		
13	+ .030	+ .027
15	− .023	− .021
19	− .013	− .011
21	+ .037	+ .038
22	+ .039	+ .040
26	+ .024	+ .027
27	+ .022	+ .025
41	− .012	− .009
48	+ .004	+ .021
49	+ .010	+ .011
67	− .013	− .001
68	+ .001	+ .012
69	− .010	− .001
84	+ .037	+ .039
87	+ .021	+ .021
116	− .021	− .003
146	+ .003	+ .005
147	+ .013	+ .016
173	− .011	− .009
180	− .042	− .042
199	+ .017	+ .015
205	+ .002	.000
209	+ .034	+ .036
212	+ .046	+ .048
214	+ .036	+ .037
218	+ .031	+ .031

[a] These stations are near pre-Cambrian formations.

Stations in the United States and Hayford anomalies for specified formations—Continued.

SUMMARY.

Geologic formation	Number of stations					Mean anomaly			
	With plus anomalies		With minus anomalies		All	With regard to sign		Without regard to sign	
	1912	1916	1912	1916		1912	1916	1912	1916
Pre-Cambrian	12	13	2	1	14	+0.019	+0.025	0.023	[illegible]
Paleozoic	23	[illegible]	49	50	72	− .011	− .010	.021	.020
Mesozoic	25	26	11	10	36	+ .009	+ .011	.017	.017
Cenozoic[a]	22	22	32	32	55	− .007	− .004	.019	.018
Cenozoic[b]	22	22	31	31	54	− .006	− .003	.018	.016
Intrusive	2	2	5	[illegible]	7	− .013	− .006	.022	.019
Effusive	2	5	6	2	[illegible]	− .005	+ .010	.015	.019
Unclassified	18	17	8	8	[illegible]	+ .010	+ .014	.021	.021
All stations[a]	104	105	113	108	218	− .002	.000	.020	.019
All stations[b]	104	105	112	107	217	− .002	+ .001	.019	.019

[a] Counting the two Seattle stations as one.
[b] With Seattle stations omitted.

ANOMALIES ON PRE-CAMBRIAN FORMATIONS.

In the above summary it is seen that there are 14 stations located on pre-Cambrian formations and that 12 have positive and only 2 negative 1912 anomalies. For the 1916 anomalies 13 are positive and only 1 negative. This seems to be very strong evidence that we may expect positive anomalies at much the greater number of future stations in the United States which may be located on the pre-Cambrian formation. It is noteworthy that nearly all of the pre-Cambrian stations in the United States are located on very small areas of that formation. This may give some clew as to the cause of the large positive anomaly.

If the density of the upper strata of the earth's crust for large distances (horizontal) from the stations is above normal, then the effect of this greater density, which will tend to increase the gravity, will be offset by the opposite effect of the compensating deficiency of density in the deeper crust. This is due to the fact that the effect of a certain amount of material in the form of a disk of infinite horizontal extent is the same on a unit mass of matter whether the unit mass is immediately above the surface of the attracting matter or at an indefinite distance above it. Therefore, if we should have a stratum or mass of pre-Cambrian material of density 2.90 at the earth's surface directly under the station, and of great or infinite extent horizontally, it would have the same attractive effect on the unit mass as if this matter were distributed through a great vertical distance but had the same horizontal extent. Therefore, if the dense material at the surface were compensated for by a deficiency of density in the lower crust, the positive effect of the former would be exactly counterbalanced by the negative effect of the compensation. Hence, we should not expect a decided positive anomaly at a pre-Cambrian gravity station should the formation be of uniform thickness and of great horizontal dimensions. This statement is based upon the assumption, which may be substantially true, that the area in question is in a state of perfect isostatic equilibrium at the depth of compensation.

If, however, the area of denser material is limited in horizontal extent, then the effect of the added material, being inversely proportional to the square of its distance from the attracted unit mass, will be greater than the negative effect of the compensation. Therefore, if there is a compensating lack of density in the lower crust, the resultant effect will be positive and we should have a positive gravity anomaly. The size of the anomaly will depend upon the thickness of the stratum of pre-Cambrian rock, its density, its horizontal extent, and the vertical location of the compensation.

In Special Publication No. 10 (pp. 110 and 111) there are given some numerical examples showing the effect of strata of various thicknesses and densities.

It should be borne in mind that in making the gravity reductions no numerical values are given for the densities in the earth's crust below sea level. (See p. 8.) It is assumed that the densities in the crust under the coastal plane at sea level for the various strata are normal, and that these densities are modified by the isostatic compensation under the topography of the interior of the continents and under the oceans. It is only the deviations from the normal densities in the crust below sea level which are considered in these investigations.

The effect of masses in different locations with reference to the station is indicated in the following table, which, with some additions, is reprinted from page 109 of Special Publication No. 10:

Table of attractions for various masses.

[Each tabular value is the vertical attraction in dynes produced at a station by a mass equivalent to a stratum 100 feet thick, of density 2.67, and of the horizontal extent indicated in the left-hand argument, if that mass is uniformly distributed from the level of the station down to the depth indicated in the top argument and from the station in all directions horizontally to the distance indicated in the left-hand argument.]

Radius of mass	Depth				
	1000 feet.	5000 feet.	10 000 feet.	15 000 feet.	113.7 kilometers.
1.28 km. (the outer radius of zone E)	0.0030	0.0018	0.0011	0.0008	0.0000
5 km	.0033	.0029	.0025	.0021	.0001
10 km	.0034	.0032	.0029	.0027	.0003
166.7 km. (the outer radius of zone O)	.0037	.0034	.0034	.0034	.0024
1190 km. (or 10° 44′, the outer radius of zone 10)	.0040	.0037	.0037	.0037	.0035

It is seen from the preceding table that a pre-Cambrian formation 10 000 feet thick, with a density of 2.94 (just 10 per cent greater than the assumed normal surface density of 2.67) and 10 km. in horizontal extent in all directions from a station on its surface will give an increase in gravity of 0.029 dyne. The effect of the isostatic compensation (uniformly distributed to the depth of compensation), the negative equivalent of 1000 feet of material of normal density (2.67), is only 0.003 dyne. The resultant effect is +0.026 dyne, approximately the average size of the 1912 pre-Cambrian anomaly.

If we should have a pre-Cambrian formation 10 000 feet thick of density 2.94, as above, but of 166.7 km. horizontal extent in all directions from the station, the effect of the topography on gravity would be increased by 0.034 dyne, while the effect of the compensation of this excess of mass would be −0.024 dyne, and the resultant effect would be only +0.010 dyne. Now, if the foundation under consideration were extended horizontally 1190 km. from the station, the positive effect would be +0.037 dyne and the effect of its compensation −0.035 dyne, and the resultant effect at the station only +0.002 dyne.

On page 80, under the discussion of the Canadian stations, it is shown that the anomalies at the stations in pre-Cambrian formations are not positive as in the United States. They differ little from the mean of all stations. The pre-Cambrian formations in Canada are of considerable horizontal extent, and therefore the effect of the increased surface densities is offset by the isostatic compensation. This agrees with the above reasoning.

If there were many gravity stations on and near a limited area of pre-Cambrian formation, it might be possible to estimate from the results the approximate limits of the space within which the densities were above normal. But it must be borne in mind that the problem of determining exactly the space or spaces within which there are abnormal densities which might cause the anomalies is not susceptible of mathematical solution. This is because there are too many unknowns which would enter into any equations used and arbitrary assumptions would have to be made. Of course, the problem can be treated mathematically and with greater numbers of stations in any given area the truth can be more closely approximated.

It seems to be evident that the anomalies are not due simply to an assumed erroneous density of the mass above sea level, for at a number of pre-Cambrian stations the elevation above sea level is less than 1500 feet, and the maximum effect of a change in the density of 10 per cent in that mass would be only 0.005 dyne. The cause of the anomaly must therefore be located to a large extent below sea level in nearly all cases.

It is no doubt true that the deep-seated rocks have densities comparable with those of the pre-Cambrian rocks seen at the surface, but the cause of the anomaly at pre-Cambrian stations seems to be due largely to the dense rock protruding through the materials of the upper crust which are of less density.

The author does not mean to state that the whole of any anomaly is due to the geological formation, for there is probably in many cases a local lack of perfect isostasy which may produce deviations from the normal gravity.

It is a noteworthy fact that the pre-Cambrian stations in the United States show an excess of gravity in general, and that they are on areas which have been subjected to erosive action for geologic ages. We may conclude that as erosion has taken place there has been a rising of the areas due probably to isostatic adjustment.

The 1916 anomalies, based upon a depth of compensation of only 60 km., are very little different from the 1912 anomalies, which are based upon a depth of 113.7 km. The former are, on an average, 0.006 dyne greater than the latter, and this is what might be expected upon the assumption of local perfect compensation. The fact that the compensation is closer to the station would make its effect greater, consequently the combined effect of the greater density of material above sea level and the compensating deficiency of material in the lower crust would be smaller than for the 1912 anomalies.

The effect of a change in the depth of compensation is discussed on pages 97 to 131.

ANOMALIES ON PALEOZOIC FORMATIONS.

In the United States there are 72 stations in the Paleozoic formation, for which 49 of the 1912 anomalies are negative and 23 positive. The mean with regard to sign is −0.011 dyne, and the mean without regard to sign is 0.021 dyne.

The addition of 94 stations in the United States since the investigation in 1912 (Special Publication No. 12) has increased the tendency of the Paleozoic anomalies to be negative. A large area of the United States is covered by rock of this formation, and the 72 Paleozoic stations are nearly one-third of all the stations.

The density of the Paleozoic formations is given by Barrell as 2.50 to 2.60. The average density, 2.55, is 0.12, or about 5 per cent, lower than the density used in making the computations. The situation here is opposite to that connected with the pre-Cambrian formation, for the stations there tended to have positive anomalies. It might be assumed that the crust under the Paleozoic formation is not in a state of perfect isostasy, and that the anomalies are the result of the departure from that state. This view is probably erroneous, because the anomalies on very large areas of Paleozoic formation have negative values and would therefore indicate decided regional deviation from the perfect condition. Most of the data contained in this report, including the anomaly maps, indicate that we have in the United States local rather than regional deviations from perfect isostasy.

The tendency of the anomalies to be negative could be caused by the lower density of the material in this formation, as compared with the value used in the computations. If near a station in a Paleozoic area the density of the upper crust were below normal, say, 5 per cent, to a depth of 15 000 feet and to a horizontal distance of 10 km. from the station, the effect of this deficient density would be a change in the attraction of 0.020 dyne. The effect of the compensating increase in density in the lower crust would be +0.002. The combined effect of considering the local densities makes a difference of 0.018 in the anomaly at the station in question.

The effect on gravity at a station due to using an erroneous value of the density of the topography, that is the material which is above sea level, would be small as a general rule for the average elevation of the Paleozoic stations in the United States is somewhat less than 1000 feet. The effect of changing by 5 per cent the density of the topography to a depth of 1000 feet and 10 km. in all directions from the stations would be only 0.0017 dyne. The effect of the compensation of the excess of mass would be less than 0.0002 dyne. It is evident that the principal cause of the negative Paleozoic anomalies is lower than sea level in the earth's crust.

It is probably true that the lighter density of Paleozoic material is the principal cause of the tendency for the anomalies at stations on this formation to have negative signs. This is no doubt supplemented by local departures from perfect isostasy near stations with large anomalies.

It is possible that the positive anomalies and the small negative anomalies are in areas where the Paleozoic strata are thin or which have material denser than normal underlying the Paleozoic matter.

The 1916 anomalies for Paleozoic areas seldom differ from the 1912 anomalies more than two units in the last place and the mean anomalies with and without regard to sign are practically the same. This is as might be expected, for the Paleozoic stations are in general on low topography and, as shown on page 72 in the discussion of the pre-Cambrian stations, a disk of very great horizontal extent has the same attractive effect regardless of the distance of the attracted mass from the surface of the disk. In fact, the effect of the topography and its compensation are so nearly equal at stations in Paleozoic areas that the anomalies by the free-air reduction, in which no account is taken of the topography and compensation, are nearly the same as the Hayford anomalies. An erroneous depth of compensation used in the computation can not explain the anomalies in the Paleozoic formation.

That there is in general a close approximation to perfect isostasy is shown by the Bouguer anomalies in the interior of the continent not in mountainous regions, for they are nearly all negative and are of considerable size, while the algebraic mean of the Hayford anomalies is nearly zero.

The Paleozoic negative anomalies in general are probably due in most part to departures from normal densities in the strata in the upper crust, but below sea level, comparatively near the station, and to a less degree to local departures from perfect isostasy.

ANOMALIES ON MESOZOIC FORMATIONS.

Of the 36 stations in the Mesozoic formation, 25 have positive and 11 negative 1912 anomalies. The means with and without regard to sign are respectively +0.009 and 0.017 dyne.

Barrell gives the density of Mesozoic rock as ranging from 2.50 to 2.60. This is lower than the density (2.67) used in making the topographic reductions. There seems to be no evident relation between the surface densities of the Mesozoic rocks and the anomalies. If there were the anomalies would be negative rather than positive.

That there is some relation between the formation and the anomalies seems to be well established, for the positive anomalies largely exceed the negative ones in number, and the mean anomaly with regard to sign is just one-half the size of the mean of all (219) anomalies without regard to sign. But the cause of the positive sign of the Mesozoic anomalies is below the upper strata. That it is regional to a certain extent is shown by the persistency of the sign in any extensive Mesozoic formation, such as in the Dakotas and in eastern Montana. But that it varies from place to place is indicated by the different values of the anomaly. For instance, at Edgemont, S. Dak. (station No. 198) the anomaly is +0.054 dyne and at Moorcroft, Wyo. (station No. 202) only 90 miles distant, it is +0.021 dyne.

There, of course, may be departures in the Mesozoic areas from the state of perfect isostasy, but it is impossible with the present data to determine with any degree of certainty what portion of an anomaly is due to such departures and what is caused by departures from normal densities in the crust above the depth of compensation or even below that depth. The depth of compensation as computed from geodetic data should not be considered as very definite. The probable error of the determination is comparatively large. The change in the deflection and the gravity anomalies is comparatively slow with a change of depth and the value of the depth is therefore somewhat indeterminate. (See pp. 97 to 112.)

ANOMALIES ON CENOZOIC FORMATIONS.

The anomalies at Cenozoic stations have a tendency to be negative, as is shown by an inspection of the anomalies at 55 Cenozoic stations in the United States. Only 22 of them are positive, while 32 are negative.

Barrell gives the Cenozoic densities as ranging from 2.40 to 2.50 (see table on p. 70), which is less than the density used in making the topographic reductions. That a portion of the anomalies is due to the small density of the surface material and of the crust close to the surface seems to be evident. The size of the anomalies may be an indication of the space occupied by the lighter material. Where the anomaly is large and negative the light strata would probably be of great thickness and of small horizontal dimensions. The erroneous density could be the cause of the negative anomalies, provided there were no local departure from perfect isostasy.

If the Cenozoic formation of small density is small in horizontal dimensions, and if there is perfect local isostasy, the effect of the light material in the upper crust and near the surface would be much greater than the opposite effect of the compensating increase in density in the lower crust.

For instance, if the density of the upper crust to a depth of 10 000 feet is 2.40 (10 per cent less than the assumed surface density), and if the material extends in a horizontal direction 10 km. from the station, the effect would be -0.029 dyne. The effect of the compensating increase in density in the remainder of the crust to the depth of the compensation would be only $+0.003$ dyne and the combined effect would be -0.026 dyne. If the lighter material extends 20 or 30 km. from the station, the combined effect would be somewhat less, while if it extended 166.7 km. in all directions from the station, the combined effect would be only -0.010 dyne.

The cause of the large Cenozoic anomalies must be local, for there are decided differences in the size of the anomalies at pairs of stations which are comparatively close together. For instance, at Virginia Beach (station No. 90) the anomaly is -0.048 dyne, while at Crisfield (station No. 215) the anomaly is only -0.029 dyne. The distance between the stations is about 80 miles.

It appears from the evidence above that we may gain from the negative anomalies of the Cenozoic formations some idea of the depth of the Cenozoic material at a station, and where there are many stations in any given locality of Cenozoic formation we may get an approximation to the horizontal limits of the affected spaces. For instance, it is reasonable to conclude that if the Virginia Beach anomaly is caused by a thick stratum of material of light density, and that if this stratum extends to Crisfield, it is considerably thinner at the latter station. The reasoning employed in the discussion of the pre-Cambrian anomalies on pages 72 to 74 would indicate that the large Cenozoic anomalies must be due largely to local causes, if it is assumed that an area under investigation is in a state of perfect isostatic equilibrium.

The data in the table on page 63 indicate that there is strong evidence that the coast stations tend to have negative anomalies. In the table given on page 79 there are shown the anomalies at the Cenozoic stations back from the coast. Of the 19 stations there are 8 with positive and 11 with negative 1912 anomalies, but the mean anomaly with regard to sign is -0.009 dyne. If, however, we eliminate the Seattle anomaly, which is -0.093, and the anomaly of station 93 (Wilmer, Ala.), which is -0.044 dyne, there would be 8 positive and 9 negative anomalies and the mean with regard to sign would be only -0.001 dyne.

This is practically normal on an average. It may indicate that the Cenozoic material in the interior of the country is not of great thickness, or that, if thick, it is of considerable horizontal extent, or that the materials under the Cenozoic stratum have densities which are greater than the normal. Of course, the anomaly may in part be caused by a lack of perfect compensation. The Bouguer anomalies at the 17 stations under consideration indicate that there is considerable isostatic compensation under these stations.

There is evidently a definite relation between the coasts and the gravity anomaly, but it may be due to the presence of Cenozoic materials which extend along practically all of the coasts. The cause of the difference in the size of the anomalies at different stations may be due to the varying thickness of the material and the varying horizontal dimensions of thick and thin strata.

That the Cenozoic areas are undercompensated, as the negative anomalies might indicate, does not seem to be true, for the reason that these areas are areas of deposition in recent times and the areas have probably been sinking during the time when materials were accumulating on them. This deposition of material would lead one to suppose that the crust under such areas is heavier than normal. Undercompensation therefore appears to be improbable. The writer is aware that there may be even in areas of heavy deposition sections which are undercompensated, but this would be due to conditions existing before deposition began.

The 1916 anomalies at Cenozoic stations show greater differences from the 1912 anomalies than they do for the other formations considered above. In most cases, where there are decided differences, the stations are on or near the coasts near where there is deep water. The computed effect, which is positive at a land station, of the compensation under the water is greater when it is farther from the surface, for the effect of lengthening the distance to the effective center of the attracting mass is more than offset by the increase in the sine of the angle of depression to the effective center. The effect of a mass in the earth's crust on the attracted unit mass is directly proportional to the sine of the angle of depression to the effective center of the attracting mass and inversely proportional to the square of the distance.

The coast stations would therefore have a smaller computed gravity with the depth of 60 km. than with a depth of 113.7 km. Consequently the negative anomalies would be reduced in size and the positive anomalies increased. For the coast stations the new depth (60 km.) gives a mean anomaly with regard to sign of −0.003 dyne, while with a depth of 113.7 km. the mean is −0.009 dyne. The new mean is nearer zero, but it is uncertain whether this is an indication that the smaller depth is nearer the truth. The discussion above shows that the negative anomalies based on the old depth may be accounted for in general by lighter material in the upper crust.

ANOMALIES ON INTRUSIVE FORMATIONS.

The number of stations in intrusive areas is only 7, of which 2 are positive and 5 negative. While there are two and one-half times as many negative as positive anomalies, we would not be justified in deciding that there is a definite relation between the intrusive formation and the gravity anomalies. Many additional stations would have to be established on this formation before any decision can be arrived at in the matter. The mean of the 1916 anomalies is slightly smaller than that of the 1912 anomalies and this may be an indication that the new depth, 60 km., is nearer the truth than the older depth of 113.7 km.

ANOMALIES ON EFFUSIVE FORMATIONS.

On this formation there are eight stations and of the 1912 anomalies 2 are positive and 6 negative. The mean with regard to sign is −0.005 dyne and without regard to sign it is 0.015 dyne. The largest anomaly is only 0.028 dyne. Of the 1916 anomalies 5 are positive, 2 negative, and 1 zero. The means with and without regard to sign are, respectively, +0.010 and 0.019 dyne.

There seems to be no relation between this formation and the anomalies, but the indications are very slightly in favor of the greater depth of compensation for the effusive areas. It would be of interest and value to have additional stations in areas covered by this formation.

ANOMALIES ON UNCLASSIFIED FORMATIONS.

These stations, as the designation implies, could not be associated with any particular formations, and it is not possible to draw any conclusions from a study of their relations.

Of the 26 unclassified stations 18 have positive and only 8 negative 1912 anomalies. This is what might be expected for the mean anomaly with regard to sign of all the 219 stations is made practically zero (only −0.002 dyne) by the use of the 1912 formula. A greater number of stations are in the Paleozoic, Cenozoic, Intrusive, and Effusive formations, which tend to be negative, than in the pre-Cambrian and Mesozoic formations, which tend to be positive, therefore to have the mean of all stations with regard to sign nearly zero there would be a tendency for the unclassified stations to be positive.

The 1916 anomalies, with depth of 60 km., are practically the same as the 1912 anomalies with the depth of 113.7 km.

An effort was made to learn whether under any one formation the plus anomalies occurred more frequently in proportion in one subdivision than in others. No such relationship between the sign of the anomaly and the subdivision of a principal geological formation could be found. For instance, in the Quaternary division of the Cenozoic there are 11 stations with positive and 19 with negative anomalies, or 37 per cent positive. In the whole Cenozoic formation there are 22 positive and 32 negative anomalies, the positive anomalies being 41 per cent of all. Like results were obtained from other tests. It appears then that the sign of the anomaly is in some way connected with a large geologic division as a whole and not with one of its subdivisions.

RELATION BETWEEN THE GRAVITY ANOMALIES AND THE GEOLOGIC FORMATION AT STATIONS IN THE UNITED STATES NOT WITHIN 20 MILES OF ANOTHER FORMATION.

In making the study of the relation between the gravity anomalies and the geological formation those stations which were not within 20 miles of other formations were separated and the data tabulated. These stations and their anomalies are shown in the following tables. The results are practically the same as when all stations on a formation are considered. For instance, for the Cenozoic stations 65 per cent are negative, while for all stations in that formation 59 per cent are negative. The mean with regard to sign is −0.010 dyne for the Cenozoic stations in the table below, while it is −0.007 for all stations in this formation. (See table on p. 72.) A similar condition exists for the other formations. The Effusive and Intrusive formations have so few stations which are not close to other formations that data for them are not given.

The table given below also contains data for 19 Cenozoic stations not on the coast and not within 20 miles of any other formation. If the two Seattle stations are counted as one, the mean with regard to sign is −0.009, while without the Seattle value the mean is −0.004. As the effect of the coast is not present, these mean values show a decided relation between the anomalies and the Cenozoic formation.

Hayford anomalies for stations in the United States on specified formations and not within 20 miles of other formations.

Formation and station number	Hayford anomaly	
	1912	1916
Pre-Cambrian formations:		
57	+0.038	+0.041
58	+ .023	+ .023
107	+ .024	+ .026
185	+ .012	+ .012
191	+ .011	+ .008
Paleozoic formation:		
12	− .027	− .028
14	+ .026	+ .028
20	+ .010	+ .022
32	− .023	− .020
33	− .003	− .003
34	− .019	− .019
35	− .009	− .010
36	− .007	− .009
37	− .005	− .005
38	− .005	− .007
39	− .016	− .018
59	+ .019	+ .015
61	− .029	− .028
72	+ .032	+ .034
74	+ .059	+ .057
88	− .010	− .013
89	− .020	− .019
[illegible]	− .052	− .051
101	+ .040	+ .045
104	− .024	− .024
105	−0.021	−0.017
106	− .013	− .014
120	− .008	− .008
121	+ .002	+ .002
122	+ .011	+ .012
123	− .043	− .041
133	− .030	− .024
134	− .027	− .027
135	− .024	− .023
136	− .012	− .011
137	+ .001	+ .002
138	− .016	− .017
139	+ .011	+ .012
140	+ .016	+ .016
141	− .016	− .018
143	+ .018	+ .018
153	− .023	− .020
155	− .021	− .019
156	− .015	− .007
166	− .023	− .021
169	+ .013	+ .013
170	+ .006	+ .007
171	− .030	− .026
172	− .034	− .027
174	− .033	− .030
176	−0.024	−0.022
177	+ .001	.000
178	+ .001	+ .002
179	− .025	− .027
181	+ .015	+ .015
182	− .050	− .051
184	− .027	− .028
196	+ .036	+ .035
204	− .026	− .025
207	− .029	− .026
208	− .008	− .008
211	− .023	− .022
Mesozoic formation:		
40	+ .014	+ .012
46	+ .024	+ .024
47	− .021	− .026
62	+ .031	+ .035
70	− .013	− .001
73	+ .005	+ .004
76	+ .002	.000
77	+ .029	+ .024
94	− .017	− .017
108	− .006	− .008

Hayford anomalies for stations in the United States on specified formations and not within 20 miles of other formations—Continued.

Formation and station number	Hayford anomaly	
	1912	1916
Mesozoic formation—Con.		
118	+0.014	+0.009
186	+ .012	+ .009
187	+ .015	+ .014
189	+ .032	+ .030
193	+ .030	+ .028
202	+ .021	+ .024
Cenozoic formation:		
1	+ .005	+ .015
2	+ .018	+ .027
3	+ .010	+ .017
4	.000	+ .004
5	− .013	− .010
6	+ .016	+ .017
7	− .009	− .008
8	+ .027	+ .030
9	− .020	− .022
17	− .021	− .016
18	− .021	− .008
53 56	− .093	− .100
66	− .050	− .049
80	− .013	− .010
83	− .006	− .005
90	− .048	− .039
92	+ .010	+ .015
93	− .044	− .042
95	+ .001	− .002
Cenozoic formation—Con.		
97	−0.012	−0.013
99	− .016	− .013
112	+ .033	+ .029
125	− .023	− .018
126	− .022	− .016
127	− .014	− .007
142	+ .011	+ .009
144	− .006	− .005
145	+ .014	+ .016
157	− .036	− .026
158	− .017	− .010
159	− .001	+ .007
160	− .014	− .008
161	− .021	− .016
163	+ .002	+ .005
164	− .014	− .010
167	− .012	− .012
168	+ .013	+ .012
190	+ .017	+ .015
215	− .029	− .023
217	− .010	− .006
Cenozoic formation, away from coast:		
6	+ .016	+ .017
9	− .020	− .022
53 56	− .093	− .100
83	− .006	− .005
Cenozoic formation, away from coast—Continued.		
93	−0.044	−0.042
95	+ .001	− .002
97	− .012	− '013
99	− .016	− .013
112	+ .033	+ .029
142	+ .011	+ .009
144	− .006	− .005
145	+ .014	+ .016
158	− .017	− .010
160	− .014	− .008
163	+ .002	+ .005
167	− .012	− .012
168	+ .013	+ .012
190	+ .017	+ .015
215	− .029	− .023
Effusive and intrusive formations:		
50	− .002	+ .017
51	+ .021	+ .038
52	− .001	+ .015
111	− .028	− .019
113	− .027	− .030

SUMMARY.

Geologic formation	Number of stations					Mean anomaly			
	With plus anomalies		With minus anomalies		All	With regard to sign.		Without regard to sign	
	1912	1916	1912	1916		1912	1916	1912	1916
Pre-Cambrian	5	5	0	0	5	+0.022	+0.022	0.022	0.022
Palezoic	18	17	39	39	57	− .009	− .008	.020	.020
Mesozoic	12	11	4	4	16	+ .011	+ .010	.018	.017
Cenozoic	13	14	26	26	40	− .010	− .007	.019	.018
Cenozoic[a]	13	14	25	25	38	− .008	− .005	.017	.016
Cenozoic, away from coast[b]	8	7	11	12	19	− .009	− .008	.020	.019
Cenozoic, away from coast[a]	8	7	10	11	18	− .004	− .003	.016	.014
Effusive and intrusive	1	3	4	2	5	− .007	+ .004	.016	.024

[a] With Seattle stations omitted.

[b] With the two Seattle stations counted as one.

RELATION BETWEEN THE GRAVITY ANOMALIES AND THE GEOLOGIC FORMATION FOR STATIONS IN CANADA.

There are 42 stations in Canada for which the principal facts are given in the table on page 54. The stations with their anomalies (Hayford, 1912) arranged according to the geologic formations are given in the following table:

Canadian stations and Hayford anomalies for specified formations.

Formation and station number	Hayford anomaly 1912	Formation and station number	Hayford anomaly 1912	Formation and station number	Hayford anomaly 1912	Formation and station number	Hayford anomaly 1912
Pre-Cambrian formations:		Paleozoic formation:		Paleozoic formation—Continued.		Unclassified:.	
		1	−0.018			23	−0.006
2	−0.010	3	− .012	28	−0.026	24	− .029
4	− .028	6	− .005	29	+ .008	26	− .023
5	+ .001	7	+ .011	31	− .009	36	+ .007
9	− .030	8	+ .006	37	− .011	39	− .009
10	− .002					40	− .008
		12	− .021	Mesozoic formation:			
11	− .022	16	− .034	32	+ .007		
13	+ .004	17	− .012	33	− .005		
14	− .045	18	+ .012	34	− .006		
15	+ .006	19					
25	+ .011		+ .006	Cenozoic formation:			
		20	− .006	35	− .004		
30	+ .001	21	− .016	42	− .016		
38	− .043	22	− .009				
41	+ .002	27	− .011				

SUMMARY.

Geological formation	Number of stations			Mean anomaly	
	All	With plus anomalies	With minus anomalies	With regard to sign	Without regard to sign
Pre-Cambrian	13	6	7	−0.012	0.016
Paleozoic	18	5	13	− .008	.013
Mesozoic	3	1	2	− .001	.006
Cenozoic	2	0	2	− .010	.010
Unclassified	6	1	5	− .011	.014
All stations	42	13	29	− .009	.013

It is a fact worthy of careful consideration that the mean without regard to sign for the Canadian stations is only 0.013 dyne while for the stations in the United States the mean is 0.019 dyne. There are only three stations (7 per cent of all) in Canada with anomalies greater than 0.030 dyne, while in the United States there are 40 stations (18 per cent of all) with anomalies greater than that amount.

The mean with regard to sign for the Canadian anomalies is −0.009 dyne, while in the United States it is −0.002 dyne. The anomalies are computed with the 1912 formula with the depth of 113.7 km., so they are comparable with the 1912 anomalies in the United States. The writer can see no cause for the mean with regard to sign being so far from that of the United States. Nor can he see any reason why the mean without regard to sign for Canadian stations is so much smaller than for the stations in the United States. The latter is an indication that the area covered by the Canadian stations is more nearly in a state of perfect isostasy locally.

The mean with regard to sign for the stations in the pre-Cambrian formation is −0.012, which is only 0.003 from the mean of all, and for the Paleozoic and Cenozoic formations the means differ only 0.001 dyne from the mean of all. The mean without regard to sign for the three Mesozoic stations is −0.001 dyne, which is 0.008 from the mean of all, but this has little significance as there are so few stations.

The conclusion must be drawn that there is no apparent relation between the geologic formation and the gravity anomalies at stations in Canada.

RELATION BETWEEN THE GRAVITY ANOMALIES AND THE GEOLOGIC FORMATION FOR STATIONS IN INDIA.

In the table below the stations in India are arranged in groups according to the geologic formation. In order to decide on what formations the stations are located, they were plotted on a geologic map in the 1890 report of the Geological Survey of India. (See p. 70).

Indian stations and Hayford anomalies for specified formations.

Formation and station number	Hayford anomaly, 1912
Pre-Cambrian formations:	
42	+0.007
43	+ .023
82	+ .008
84	+ .001
91	+ .023
94	− .056
95	+ .046
108	− .039
Paleozoic formation:	
13	+ .006
20	− .004
48	.000
59	− .011
88	− .010
103	+ .021
Mesozoic formation:	
107	+ .022
Cenozoic formation:	
1	+ .009
2	− .014
3	+ .001
6	− .036
15	− .022
Cenozoic formation—Continued.	
16	−0.003
22	− .002
26	+ .024
29	− .005
30	− .003
32	− .078
35	+ .003
38	+ .030
40	− .028
44	− .015
51	− .027
52	+ .031
58	− .061
60	− .065
66	+ .033
67	− .013
70	− .033
71	+ .011
77	+ .007
78	− .050
83	− .083
89	+ .019
93	− .052
96	+ .001
100	− .066
101	− .047
Effusive formation:	
5	+0.019
8	+ .023
14	+ .018
17	+ .055
31	+ .012
45	+ .032
50	+ .039
65	− .022
73	− .027
97	+ .003
98	+ .029
106	− .018
Unclassified:	
4	− .011
9	+ .031
12	+ .014
18	− .002
19	+ .017
24	− .013
33	− .015
37	+ .013
39	+ .012
41	− .006
55	− .009
72	− .003
75	+ .047
87	+ .001
99	+ .016

SUMMARY.

Geological formation	Number of stations			Mean anomaly	
	All	With plus anomalies	With minus anomalies	With regard to sign	Without regard to sign
Pre-Cambrian	8	6	2	+0.002	0.025
Paleozoic	6	2	3	.000	.009
Mesozoic	1	1	0	+ .022	.022
Cenozoic	31	11	20	− .017	.028
Effusive	12	9	3	+ .014	.025
Unclassified	15	[illegible]	7	+ .006	.014
All stations	73	37	35	− .004	.023

The anomalies are based upon the United States Coast and Geodetic Survey formula of 1912, and hence are comparable with the 1912 anomalies in Canada and in the United States. The mean with regard to sign is −0.004, and this differs only 0.002 from the mean in the United States, which is −0.002 dyne.

If the latest value of gravity for the base station, Dehra Dun, 979.065 dynes, had been used instead of 979.063 dynes, (see p. 55), the observed values in India would each be greater by 0.002 dyne. Then the mean with regard to sign would be −0.002, the same as for the United States.

There are 8 stations in pre-Cambrian formations in India, of which 6 have positive anomalies and 2 negative anomalies. The two stations, Nos. 94 and 108, with negative anomalies, which are quite large, and one station, No. 82, with a rather small positive anomaly, are in the extreme southern part of the Indian Peninsula on a very extensive area of pre-Cambrian formation. The wide extent of this area would probably prevent the existence of large positive anomalies (see p. 72) in spite of the density, greater than normal, of the surface and subsurface rocks, but there must be in addition some unusual local deficiency in the underlying matter in order to account for these large negative anomalies. Stations 94 and 108 are only about 8 miles apart and should really be considered as only one station, as both must be affected by the same anomalous condition. The mean anomaly at these two stations is −0.048. If these two stations were considered as one, then there would be 6 pre-Cambrian stations with positive anomalies and only 1 with negative anomaly and the mean with regard to sign for this group would be +0.009, which is of the same sign and about one-third the size of the corresponding value for United States pre-Cambrian stations. With the exception of the three stations, 82, 94, and 108, noted above, all the pre-Cambrian stations are situated on less widely extended areas and have positive anomalies, but there is no striking relation between the extent of the area and the magnitude of the anomaly except perhaps at station 43, Jubbulpore, which is on a very limited area of the formation. The map does not indicate the extent of the formation around station 95, Sandakphu.

There seems to be no relation between the anomaly and the Paleozoic formation, as the mean anomaly is nearly normal. This fact should not be given much consideration, as there are comparatively few stations in this formation.

The Mesozoic formation has only one station, and that cán not be considered as representing any relation whatever.

The Cenozoic formation has 42 per cent of all the stations and has the only negative mean anomaly with regard to sign. This mean anomaly is −0.017. It agrees in sign, but is much larger than the Cenozoic mean anomaly with regard to sign in the United States, which is −0.007 dyne. All of the Indian Cenozoic stations are back from the coast except one, and it must be concluded that there is a very definite relation between the anomalies and the Cenozoic formation. On page 76 the question was discussed as to whether the Cenozoic formation or the proximity to the open coast was the cause of the negative anomalies at coast stations. The 31 Cenozoic anomalies in India seem to prove that this formation is the main cause of the negative anomalies.

Many of the Cenozoic stations in India are in areas to which great quantities of material have been carried from the Himalaya Mountains. It is probable that the larger Cenozoic anomalies are above portions of the crust where the recent material is thick and of limited horizontal extent. (See discussion under "pre-Cambrian anomalies," pp. 72 to 74.)

It has been held by some geodesists in India[a] that there is probably a rift in the earth's crust where the large negative anomalies exist. The evidence at hand makes it possible to account for the anomalies by the Cenozoic formation in the affected area.

Of course, it is probable that in India, as in other countries, there are local, and in some areas regional, departures from a state of perfect isostasy, but as evidence in the form of gravity stations accumulates the theory of isostasy is given added strength.

The effect of the change of depth from 113.7 km. to 60 km. is discussed at some length on pages 97 to 112. It should be noticed that the general effect of the change in the depth is slight, though in a few cases it is comparatively large. The anomalies, not being materially changed by a decided change in depth, are dependent upon some other condition or conditions in the earth's crust than an erroneous depth.

The summaries on pages 72 and 81, which give evidence for stations in the United States and India, respectively, point strongly to rather definite relations between the sign of the anomaly and the surface geology at the station. This relation may be due to variation from the normal density for strata in the upper crust, these abnormal densities being compensated for by a counterbalancing change in density occurring in the lower crust, possibly to the depth of compensation.

RELATION BETWEEN THE GRAVITY ANOMALIES AND THE GEOLOGIC FORMATION SHOWN GRAPHICALLY.

In figure 17 there are shown areas which have certain geologic formations at the surface of the earth. The outlines of the areas were copied from the geologic map of North America mentioned on page 70. The scale of this illustration is the same as for those which show the

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[a] Survey of India, Professional Paper No. 12, On the Origin of the Himalaya Mountains, by Col. S. G. Burrard, p. 5.

gravity anomaly contours (figs. 11 to 14). The Cenozoic and Paleozoic areas are shown in yellow, which is also used on the anomaly maps to show the negative areas. The pre-Cambrian and Mesozoic areas are shown in green, the color used to indicate positive areas on the anomaly illustrations.

The largest continuous area is for the Paleozoic formation, and extends from eastern New York westward to Minnesota, southwestward to Texas, and southward to Alabama. There is practically no portion of this area with any material other than that of the Paleozoic. There is a striking similarity between this Paleozoic area and the very extensive negative area which extends from New England westward to Iowa and Missouri, as shown in figure 11, which shows the Hayford 1912 anomalies. A break in this negative area occurs in Michigan, Ohio, and Indiana, where there are four stations with positive anomalies; but their size is small, the maximum anomaly being only +0.012 dyne. Within this large Paleozoic area there are 52 stations with negative anomalies and only 23 with positive anomalies.

Along the Atlantic coast from New York City southward and along all of the Gulf coast the geologic formation is Cenozoic, except for a small break on the coast of South Carolina. Figure 17 gives the limits of the coastal areas belonging to this formation (shown in yellow). A comparison with figure 11 shows that there is some similarity between the negative areas and the Cenozoic areas near the coast. They agree more closely very near the coast.

There is an extensive area in Minnesota, South Dakota, and North Dakota within which the geology is largely pre-Cambrian and Mesozoic. There is a second pre-Cambrian and Mesozoic area in Montana and Wyoming. Between these two areas there is an area in which the geology is largely Cenozoic. The gravity anomaly map (fig. 11) shows that there are no negative anomalies within the limits of the above three areas. There are only two stations in the intervening Cenozoic area, however. It is worthy of note that there is a narrow extension of the first-mentioned pre-Cambrian and Mesozoic area southward into Nebraska and Kansas, and that a positive area in figure 11 coincides approximately with this extension.

A narrow strip of nearly all Cenozoic formation extends southward from South Dakota to Texas and New Mexico. A band of negative area in figure 11 partly coincides with this Cenozoic region. If more stations were established within the two areas, they would possibly coincide more nearly.

In western and central Texas there is an area mostly of Mesozoic formation. Figure 11 shows only three stations within the area, and two are positive. The other station, at Austin, is negative, but is very close to the border of the area under consideration. The contours are drawn in such a way as to make negative nearly one-half the area.

A long strip of pre-Cambrian or Mesozoic formation (including a few small areas of other formations) extends from the Hudson River southwestward along the Appalachian Mountains to Alabama, thence northward in a very narrow band to western Kentucky. There is some similarity between this area and the areas of positive anomaly which extend along the Appalachian system from New York to Georgia and Alabama.

In northern Michigan and Wisconsin and across the international boundary there is an area of pre-Cambrian formation in which all of the stations of the United States have positive anomalies.

That portion of the United States which has not been considered above has no extensive area in which there is only one geologic formation or combinations of pre-Cambrian and Mesozoic or of Paleozoic and Cenozoic. It is interesting to note that in the remainder of the United States, not colored in figure 17, the gravity contours show that there are no steep contours except in the vicinity of Seattle. The western part of the United States is largely negative, but the characteristics of the contours would no doubt be changed greatly by the addition of new stations.

We must conclude that the data contained in figures 11 and 17 substantiate the evidence given in the table on pages 71 and 72 that the pre-Cambrian and Mesozoic areas have in general positive anomalies and that the Paleozoic and Cenozoic areas have a strong tendency to negative anomalies.

RELATION BETWEEN THE GRAVITY ANOMALIES AND AREAS OF EROSION AND DEPOSITION.

It has been shown that there is a rather definite relation between the gravity anomalies and certain geologic formations and that there is also a relation between the anomalies and the topography for coast stations. (See pp. 70 to 83 and also pp. 63 to 69.) It has been indicated that this relation at coast stations is due to the fact that along most of the coast the materials, at least at the surface, belong to the Cenozoic geologic formation. (See p. 76.)

It is probably true that along the whole coast of the United States deposition of the material has been taking place in recent geologic time. The natural assumption would be that this deposited material is an extra load on the earth's crust and that in consequence observed gravity should be in excess of the computed gravity. This, however, is not the case. An inspection of the gravity anomaly map, figure 11, shows that along the coasts observed gravity is, in general, less than the computed gravity.

The logical conclusion from all available data seems to be that isostasy along the coasts is nearly perfect on the whole and that the computed gravity is too great because the materials in the upper crust are less than normal. According to Barrell the densities of Cenozoic matter vary from 2.40 to 2.50, while on an average the density for the whole land surface of the earth is about 2.67, the value used in the computations in this volume. It seems probable that as the materials are deposited along the coasts isostatic adjustment takes place and the pressure at the depth of compensation is in general normal. In the interior of the country the areas covered by the Cenozoic formation, which are likewise areas of recent deposition, are largely negative, as shown in figure 11. This is a condition similar to that found along the coasts.

The areas of recent erosion are greater than those of recent deposition. They are areas within which theoretically the gravity anomalies should be negative, but there appears to be no such relation. In fact, the oldest formations which no doubt have been subjected to the greatest erosion are in general areas of positive anomalies. This is shown by a comparison of figures 11 and 17, one of which shows the gravity anomalies and areas of negative and positive anomalies and the other limits of large areas of certain geologic formations. The pre-Cambrian formation which has been longest exposed to erosion is, in the United States, a formation in which the gravity anomalies have a very strong tendency to be positive.

It is probable that the positive anomalies at stations in the pre-Cambrian formation are due largely to the density greater than 2.67 in the material above sea level and also to a density greater than normal in the strata in the upper crust below sea level. (See pp. 72 and 81.) No assumption need be made in regard to what is the normal density of the materials in a stratum at a certain depth below sea level. It is only the deviation from the normal with which we are concerned.

The mountain regions have a number of stations above the general level. They are all included in areas which have been and are now subject to erosion. There seems to be no relation between the anomalies and the topography in these cases.

In India there is a broad belt of recent geologic material running approximately east and west at the foot of the Himalaya Mountains. The stations on this recent formation, which no doubt is largely due to the deposition of materials eroded from the mountains, have in general negative anomalies. It is impossible that the addition of materials could make the pressure less than normal on the surface at the depth of compensation. We may therefore conclude that isostatic adjustment probably follows the deposition of materials and that the negative anomaly is probably due to the lighter materials in the upper crust. (See p. 82.)

There seems to be no effect due to the melting of the ice cap on the size and sign of the gravity anomaly. This is evidenced by a study of figure 11. If isostasy were perfect at the beginning of the ice age and if the isostatic adjustment kept pace with the accumulation of ice, there must have been an adjustment of opposite sign, upon the melting of the ice, for on an average the area that was covered by the sheet of ice is very close to a state of equilibrium now.

Chapter VI.—REGIONAL VERSUS LOCAL DISTRIBUTION OF COMPENSATION.

On pages 98 to 102 of Special Publication No. 10 there is a discussion of this subject based upon data for 41 stations in the United States and 4 stations not in this country. Similar data are now available for 124 stations in the United States.

The question to be considered is whether a topographic feature is compensated for by a deficiency of mass directly under it, or whether the topographic feature is compensated for by a deficiency of mass distributed through a more extensive portion of the earth's crust than that directly beneath the feature.

The theory of local compensation postulates that the deficiency of mass under any topographic feature is uniformly distributed in a column extending directly from the topographic feature vertically to a certain depth. In this discussion the depth is taken as 113.7 km. This depth is the one used in making the reduction for topography and isostatic compensation.

The theory of regional compensation postulates, on the other hand, that an individual topographic feature is compensated for by a deficiency of mass equal in amount to the topography, but of opposite sign, and that this deficiency is uniformly distributed from the surface to the depth of compensation, but has a horizontal extent greater than that of the feature itself.

The method of computing the data need not be given here, as the reader can learn of this by consulting pages 98 and 99 of Special Publication No. 10.

The table following gives the data for 124 stations in the United States. In column 1 are given the number and name of the stations. The effect of topography and compensation computed on the theory of complete local isostasy is given for each station in the second column. In columns 3, 5, and 7 are given the effect of local compensation out to the outer limits of zones K, M, and O, respectively, while in columns 4, 6, and 8 are given the effect of compensation computed upon the theory that the compensation is uniformly distributed horizontally to the outer limits of zones K, M, and O, respectively. In column 9 are given the Hayford anomalies based on complete local compensation. These are what are called the 1912 anomalies. (See p. 53.) They are computed by the 1912 Coast and Geodetic Survey formula and upon the assumption that the depth of compensation is 113.7 km. In the last three columns are given the anomalies for the three methods of regional distribution of compensation with a depth of compensation of 113.7 km.

Comparison between local and regional isostatic compensation.

Number and name of station	Effect of topography and compensation	Effect of compensation within outer limit of—						Hayford anomaly, 1912	Anomaly with regional compensation within outer limit of—		
		Zone K (18.8 km.)		Zone M (58.8 km.)		Zone O (166.7 km.)			Zone K	Zone M	Zone O
		Local	Regional	Local	Regional	Local	Regional				
1. Key West, Fla.	+0.032	0.000	0.000	+0.001	+0.003	+0.010	+0.021	+0.008	+0.008	+0.006	−0.003
2. West Palm Beach, Fla.	+ .031	.000	+ .001	+ .003	+ .005	+ .007	+ .009	+ .018	+ .017	+ .016	+ .016
3. Punta Gorda, Fla.	+ .020	.000	.000	.000	.000	.000	.000	+ .010	+ .010	+ .010	+ .010
4. Apalachicola, Fla.	+ .015	.000	.000	.000	.000	+ .001	+ .001	.000	.000	.000	.000
5. New Orleans, La.	+ .013	.000	.000	.000	.000	.000	.000	− .013	− .013	− .013	− .013
6. Rayville, La.	+ .008	.000	− .001	.000	− .001	.000	− .003	+ .016	+ .017	+ .017	+ .019
7. Galveston, Tex.	+ .007	.000	.000	.000	.000	.000	.000	− .009	− .009	− .009	− .009
8. Point Isabel, Tex.	+ .015	.000	.000	.000	.000	+ .003	+ .006	+ .027	+ .027	+ .027	+ .024
9. Laredo, Tex.	+ .003	.000	− .002	− .004	− .007	− .009	− .012	− .020	− .018	− .017	− .017
10. Austin, Tex. (State capitol)	− .008	− .008	− .008	− .009	− .010	− .018	− .019	− .008	− .008	− .007	− .007

Comparison between local and regional isostatic compensation—Continued.

Number and name of station	Effect of topography and compensation	Effect of compensation within outer limit of—						Hayford anomaly, 1912	Anomaly with regional compensation within outer limit of—		
		Zone K (18.8 km.)		Zone M (58.8 km.)		Zone O (166.7 km.)			Zone K	Zone M	Zone O
		Local	Regional	Local	Regional	Local	Regional				
11. Austin, Tex. (university).	−0.001	−0.003	−0.003	−0.009	−0.010	−0.018	−0.019	−0.010	−0.010	−0.009	−0.009
12. McAlester, Okla.	+ .001	− .003	− .004	− .010	− .010	− .017	− .017	− .027	− .026	− .027	− .027
13. Little Rock, Ark.	+ .001	.000	− .002	− .002	− .005	− .008	− .014	+ .030	+ .032	+ .033	+ .036
14. Columbia, Tenn.	+ .006	− .004	− .004	− .009	− .009	− .017	− .017	+ .026	+ .026	+ .026	+ .026
15. Atlanta, Ga.	+ .014	− .004	− .005	− .011	− .013	− .021	− .022	− .023	− .022	− .021	− .022
16. McCormick, S. C.	+ .012	− .002	− .002	− .006	− .007	− .012	− .015	+ .015	+ .015	+ .016	+ .018
17. Charleston, S. C.	+ .016	.000	.000	.000	.000	.000	+ .001	− .021	− .021	− .021	− .022
18. Beaufort, N. C.	+ .036	.000	.000	.000	.000	+ .005	+ .017	− .021	− .021	− .021	− .033
19. Charlottesville, Va.	+ .002	− .002	− .003	− .010	− .011	− .020	− .024	− .013	− .012	− .012	− .009
20. Deer Park, Md.	+ .041	− .013	− .015	− .029	− .026	− .044	− .035	+ .010	+ .012	+ .007	+ .001
21. Washington, D. C. (Coast Geodetic Survey Office).	+ .004	.000	− .001	− .001	− .003	− .005	− .009	+ .037	+ .038	+ .039	+ .041
22. Washington, D. C (Smithsonian Institution).	+ .003	.000	− .001	− .001	− .003	− .005	− .009	+ .039	+ .040	+ .041	+ .043
23. Baltimore, Md.	+ .006	.000	− .001	− .001	− .003	− .005	− .009	− .011	− .010	− .009	− .007
24. Philadelphia, Pa.	+ .009	.000	− .001	− .001	− .002	− .004	− .007	+ .022	+ .023	+ .023	+ .025
25. Princeton, N. J.	+ .013	.000	− .001	− .001	− .003	− .005	− .008	− .019	− .018	− .017	− .016
26. Hoboken, N. J.	+ .008	.000	.000	− .001	− .002	− .005	− .009	+ .024	+ .024	+ .025	+ .028
27. New York, N. Y.	+ .011	.000	.000	− .001	− .002	− .006	− .009	+ .022	+ .022	+ .023	+ .025
28. Worcester, Mass.	+ .018	− .002	− .003	− .007	− .008	− .012	− .011	− .020	− .019	− .019	− .021
29. Boston, Mass.	+ .013	.000	.000	.000	− .001	− .002	− .005	+ .005	+ .005	+ .006	+ .008
30. Cambridge, Mass.	+ .010	.000	.000	− .002	− .001	− .005	− .005	+ .005	+ .005	+ .004	+ .005
31. Calais, Me.	+ .010	.000	.000	− .001	− .002	− .003	− .005	− .008	− .008	− .007	− .006
32. Ithaca, N. Y.	+ .005	− .003	− .005	− .011	− .013	− .023	− .026	− .023	− .021	− .021	− .020
33. Cleveland, Ohio.	.000	− .004	− .004	− .010	− .010	− .019	− .019	− .003	− .003	− .003	− .003
34. Cincinnati, Ohio.	+ .002	− .004	− .004	− .010	− .009	− .020	− .019	− .019	− .019	− .020	− .020
35. Terre Haute, Ind.	+ .001	− .002	− .002	− .006	− .007	− .013	− .016	− .009	− .009	− .008	− .006
36. Chicago, Ill.	+ .007	− .002	− .003	− .005	− .007	− .010	− .014	− .007	− .006	− .005	− .003
37. Madison, Wis.	+ .003	− .004	− .005	− .012	− .013	− .021	− .020	− .005	− .004	− .004	− .006
38. St. Louis, Mo.	+ .001	− .001	− .002	− .005	− .007	− .012	− .014	− .005	− .004	− .003	− .003
39. Kansas City, Mo.	− .001	− .004	− .005	− .012	− .013	− .022	− .023	− .016	− .015	− .015	− .015
40. Ellsworth, Kans.	− .004	− .007	− .008	− .020	− .021	− .038	− .041	+ .014	+ .015	+ .015	+ .017
41. Wallace, Kans.	.000	− .018	− .018	− .048	− .048	− .084	− .085	− .012	− .012	− .012	− .011
42. Colorado Springs, Colo.	− .007	− .036	− .036	− .094	− .093	− .165	− .164	− .007	− .007	− .008	− .008
43. Pikes Peak, Colo.	+ .187	− .052	− .044	− .113	− .100	− .189	− .172	+ .021	+ .013	+ .008	+ .004
44. Denver, Colo.	− .015	− .026	− .028	− .076	− .085	− .152	− .169	− .016	− .014	− .007	+ .001
45. Gunnison, Colo.	− .001	− .041	− .044	− .120	− .128	− .212	− .210	+ .020	+ .023	+ .028	+ .018
46. Grand Junction, Colo.	− .051	− .026	− .028	− .082	− .089	− .156	− .170	+ .024	+ .026	+ .031	+ .038
47. Green River, Utah.	− .043	− .021	− .024	− .067	− .074	− .130	− .150	− .021	− .018	− .014	− .001
48. Pleasant Valley Junction, Utah.	+ .024	− .040	− .041	− .103	− .100	− .171	− .159	+ .004	+ .005	+ .001	− .008
49. Salt Lake City, Utah.	− .041	− .026	− .028	− .075	− .078	− .137	− .143	+ .010	+ .012	+ .013	+ .016
50. Grand Canyon, Wyo.	+ .038	− .041	− .042	− .108	− .109	− .180	− .165	− .002	− .001	− .001	− .017
51. Norris Geyser Basin, Wyo.	+ .031	− .040	− .042	− .104	− .105	− .176	− .163	+ .021	+ .023	+ .022	+ .008
52. Lower Geyser Basin, Wyo.	+ .028	− .039	− .041	− .103	− .104	− .177	− .169	− .001	+ .001	.000	− .009
53. Seattle, Wash. (university).	− .020	.000	.000	− .002	− .004	− .020	− .038	− .093	− .093	− .091	− .075
54. San Francisco, Cal.	+ .045	.000	.000	− .002	− .003	+ .009	+ .033	− .023	− .023	− .022	− .047
55. Mount Hamilton, Cal.	+ .120	− .012	− .012	− .017	− .009	− .018	− .003	− .003	− .003	− .011	− .018
56. Seattle, Wash. (high school).	− .018	.000	.000	− .002	− .004	− .020	− .038	− .093	− .093	− .091	− .075
57. Iron River, Mich.	+ .014	− .007	− .008	− .020	− .020	− .031	− .024	+ .038	+ .039	+ .038	+ .031
58. Ely, Minn.	+ .008	− .007	− .008	− .019	− .021	− .033	− .029	+ .023	+ .024	+ .025	+ .019
59. Pembina, N. Dak.	− .009	− .004	− .004	− .011	− .012	− .023	− .025	+ .019	+ .019	+ .020	+ .021
60. Mitchell, S. Dak.	− .006	− .007	− .007	− .018	− .019	− .035	− .037	+ .001	+ .001	+ .002	+ .003
61. Sweetwater, Tex.	+ .009	− .011	− .012	− .028	− .029	− .049	− .049	− .029	− .028	− .028	− .029
62. Kerrville, Tex.	+ .013	− .009	− .010	− .024	− .025	− .038	− .032	+ .031	+ .032	+ .032	+ .025
63. El Paso, Tex.	+ .001	− .020	− .021	− .054	− .055	− .098	− .104	+ .007	+ .008	+ .008	+ .013
64. Nogales, Ariz.	+ .038	− .020	− .020	− .046	− .041	− .076	− .069	− .050	− .050	− .055	− .057
65. Yuma, Ariz.	− .010	− .001	− .001	− .004	− .006	− .012	− .018	+ .009	+ .009	+ .011	+ .015
66. Compton, Cal.	.000	.000	− .001	− .003	− .004	− .014	− .024	− .050	− .049	− .049	− .040
67. Goldfield, Nev.	+ .027	− .030	− .030	− .074	− .078	− .134	− .141	− .013	− .013	− .009	− .006
68. Yavapai, Ariz.	+ .034	− .030	− .030	− .080	− .080	− .137	− .129	+ .001	+ .001	+ .001	− .007
69. Grand Canyon, Ariz.	− .096	− .028	− .029	− .079	− .080	− .136	− .127	− .010	− .009	− .009	− .019
70. Gallup, N. Mex.	+ .014	− .036	− .036	− .095	− .095	− .163	− .156	− .013	− .013	− .013	− .020
71. Las Vegas, N. Mex.	+ .017	− .036	− .035	− .094	− .094	− .160	− .150	+ .003	+ .002	+ .003	− .007
72. Shamrock, Tex.	+ .007	− .013	− .012	− .031	− .031	− .055	− .056	+ .032	+ .031	+ .032	+ .033
73. Denison, Tex.	− .001	− .004	− .004	− .010	− .009	− .018	− .017	+ .005	+ .005	+ .004	+ .004
74. Minneapolis, Minn.	− .005	− .004	− .005	− .012	− .013	− .022	− .024	+ .059	+ .060	+ .060	+ .061
75. Lead, S. Dak.	+ .044	− .026	− .027	− .064	− .061	− .102	− .089	+ .052	+ .053	+ .049	+ .039
76. Bismarck, N. Dak.	− .005	− .008	− .009	− .024	− .026	− .044	− .047	+ .002	+ .003	+ .004	+ .005
77. Hinsdale, Mont.	− .017	− .010	− .012	− .030	− .034	− .058	− .067	+ .029	+ .031	+ .033	+ .038
78. Sandpoint, Idaho.	− .044	− .014	− .014	− .045	− .049	− .086	− .095	+ .002	+ .002	+ .006	+ .011
79. Boise, Idaho.	− .042	− .016	− .018	− .047	− .051	− .094	− .108	+ .008	+ .010	+ .012	+ .022
80. Astoria, Oreg.	+ .008	.000	.000	− .002	− .005	.000	+ .008	− .013	− .013	− .010	− .021

Comparison between local and regional isostatic compensation—Continued.

Number and name of station	Effect of topography and compensation	Effect of compensation within outer limit of—						Hayford anomaly, 1912	Anomaly with regional compensation within outer limit of—		
		Zone K (18.8 km.)		Zone M (58.8 km.)		Zone O (166.7 km.)			Zone K	Zone M	Zone O
		Local	Regional	Local	Regional	Local	Regional				
81. Sisson, Cal.	+0.015	−0.022	−0.026	−0.058	−0.059	−0.096	−0.098	−0.010	−0.006	−0.009	−0.018
82. Rock Springs, Wyo.	− .001	− .036	− .034	− .093	− .093	− .169	− .177	+ .013	+ .011	+ .013	+ .021
83. Paxton, Nebr.	+ .002	− .014	− .016	− .041	− .043	− .073	− .077	− .006	− .004	− .004	− .002
84. Washington, D. C. (Bureau of Standards)	+ .012	.000	− .001	− .001	− .003	− .005	− .009	+ .037	+ .038	+ .039	+ .041
85. North Hero, Vt.	− .009	.000	− .001	− .003	− .007	− .012	− .016	+ .001	+ .002	+ .005	+ .005
86. Lake Placid, N. Y.	+ .032	− .011	− .012	− .024	− .021	− .033	− .020	+ .006	+ .007	+ .003	− .007
87. Potsdam, N. Y.	− .004	− .002	− .003	− .008	− .010	− .017	− .017	+ .021	+ .022	+ .023	+ .021
88. Wilson, N. Y.	− .002	.000	− .002	− .003	− .004	− .011	− .017	− .010	− .008	− .009	− .004
89. Alpena, Mich.	.000	− .004	− .003	− .010	− .008	− .016	− .016	− .020	− .021	− .022	− .020
90. Virginia Beach, Va.	+ .025	.000	.000	.000	[illegible]	.000	+ .002	− .048	− .048	− .048	− .050
91. Durham, N. C.	+ .014	.000	− .002	− .004	− .006	− .008	− .010	+ .036	+ .038	+ .038	+ .038
92. Fernandina, Fla.	+ .017	.000	.000	.000	.000	.000	+ .001	+ .010	+ .010	+ .010	+ .009
93. Wilmer, Ala.	+ .018	.000	− .001	− .001	− .002	− .001	− .002	− .044	− .043	− .043	− .043
94. Aliceville, Ala.	+ .008	.000	− .001	− .001	− .003	− .005	− .007	− .017	− .016	− .015	− .015
95. New Madrid, Mo.	+ .001	.000	− .002	− .001	− .004	− .007	− .011	+ .001	+ .003	+ .004	+ .005
96. Mena, Ark.	+ .015	− .004	− .006	− .012	− .013	− .020	− .017	− .052	− .050	− .051	− .055
97. Nacogdoches, Tex.	+ .008	.000	− .002	− .001	− .004	− .005	− .006	− .012	− .010	− .009	− .011
98. Alpine, Tex.	+ .033	− .022	− .025	− .061	− .063	− .098	− .085	+ .021	+ .024	+ .023	+ .008
99. Farwell, Tex.	+ .011	− .020	− .021	− .055	− .056	− .096	− .094	− .016	− .015	− .015	− .018
100. Guymon, Okla.	− .001	− .014	− .016	− .042	− .046	− .077	− .081	− .017	− .015	− .013	− .013
101. Helenwood, Tenn.	+ .015	− .007	− .008	− .020	− .020	− .033	− .030	+ .040	+ .041	+ .040	+ .037
102. Cloudland, Tenn.	+ .130	− .019	− .017	− .039	− .033	− .058	− .043	+ .004	+ .002	− .002	− .011
103. Hughes, Tenn.	+ .053	− .018	− .018	− .038	− .034	− .057	− .044	− .029	− .029	− .033	− .042
104. Charleston, W. Va.	− .010	− .004	− .005	− .012	− .015	− .027	− .035	− .024	− .023	− .021	− .016
105. State College, Pa.	+ .010	− .005	− .007	− .016	− .018	− .030	− .030	− .021	− .019	− .019	− .021
106. Fort Kent, Me.	+ .001	− .002	− .003	− .006	− .009	− .016	− .017	− .013	− .012	− .010	− .012
107. Prentice, Wis.	+ .010	− .007	− .008	− .019	− .019	− .032	− .028	+ .024	+ .025	+ .024	+ .020
108. Fergus Falls, Minn.	+ .001	− .005	− .006	− .014	− .015	− .026	− .029	− .006	− .005	− .005	− .003
109. Sheridan, Wyo.	− .031	− .020	− .021	− .068	− .077	− .120	− .118	+ .032	+ .033	+ .041	+ .030
110. Boulder, Mont.	− .007	− .031	− .032	− .077	− .074	− .137	− .139	− .015	− .014	− .018	− .013
111. Skykomish, Wash.	− .047	− .014	− .018	− .038	− .038	− .058	− .047	− .028	− .024	− .028	− .039
112. Olympia, Wash.	− .012	.000	.000	− .002	− .003	− .014	− .025	+ .033	+ .033	+ .034	+ .044
113. Heppner, Oreg.	− .007	− .010	− .010	− .027	− .029	− .056	− .067	− .027	− .027	− .025	− .016
114. Truckee, Cal.	+ .057	− .035	− .035	− .085	− .081	− .129	− .100	− .028	− .028	− .032	− .057
115. Winnemucca, Nev.	− .004	− .022	− .023	− .062	− .065	− .116	− .128	− .009	− .008	− .006	+ .003
116. Ely, Nev.	+ .020	− .038	− .039	− .094	− .093	− .159	− .150	− .021	− .020	− .022	− .030
117. Guernsey, Wyo.	− .016	− .022	− .024	− .062	− .067	− .117	− .127	+ .036	+ .038	+ .041	+ .046
118. Pierre, S. Dak.	− .013	− .007	− .008	− .021	− .023	− .042	− .048	+ .014	+ .015	+ .016	+ .020
119. Fort Dodge, Iowa	+ .002	− .004	− .006	− .014	− .015	− .026	− .027	+ .015	+ .017	+ .016	+ .016
120. Keithsburg, Ill.	− .003	− .004	− .003	− .009	− .008	− .016	− .016	− .008	− .009	− .009	− .008
121. Grand Rapids, Mich.	+ .003	− .004	− .004	− .010	− .009	− .018	− .017	+ .002	+ .002	+ .001	+ .001
122. Angola, Ind.	+ .011	− .004	− .005	− .011	− .012	− .019	− .018	+ .011	+ .012	+ .012	+ .010
123. Albany, N. Y.	− .006	− .001	− .002	− .008	− .011	− .020	− .025	− .043	− .042	− .040	− .038
1 4. Port Jervis, N. Y.	+ .003	− .003	− .004	− .011	− .013	− .020	− .019	− .033	− .032	− .031	− .034
Mean with regard to sign								− .002	− .001	− .001	− .002
Mean without regard to sign								.020	.019	.020	.020
Mean with regard to sign [a]								.000	+ .001	+ .001	− .001
Mean without regard to sign [a]								.018	.018	.018	.019

[a] Omitting Seattle stations.

If we ignore the two Seattle stations, which seems to be justifiable on account of their excessively large anomalies (see p. 53), we have means with regard to sign, which are zero or 0.001 dyne, for the four methods of horizontal distribution of the compensation. Also three of the methods have means without regard to sign of 0.018 dyne and one of them a mean of 0.019 dyne. These anomalies show that for the country taken as a whole, no one of the methods has an advantage over the others.

It can be readily understood that for a station on a plateau of considerable horizontal extent the effect of compensation should be the same by the several methods, for the amount of compensation under any portion of the area near the station would be the same for each. If the country has varied topography, then the effect of compensation will be different for the different methods of distribution. For instance, in a valley with mountains on either side the effect of the compensation will be different if some of the compensation of the mountain masses is extended horizontally under the valley.

The decision as to whether we have local or regional compensation must depend upon whether any one method has a general application to a set of stations which exist under the same or similar conditions. For instance, if mountain stations have smaller anomalies on an average, and if the mean of all these stations with regard to sign should be close to zero when reduced by a given method, then we should be justified in concluding that this method is based upon more nearly correct assumptions than a method which gives larger anomalies and a larger mean with regard to sign.

In order to make the regional method of reduction logical, the compensation of each topographic feature should be computed separately to the limits of the zone having the topographic feature at its center. The method of computation actually adopted may give very erroneous results. For instance, let us assume that the compensation is distributed regionally within zone O, with the station at its center. It may happen that the station is in a broad valley or on a plain with mountains surrounding it at a distance of about 167 kms. None of the compensation under the mountains would be taken into account in making the reductions, and the computed value of gravity would be too great. On the other hand, if the station were in the mountains, with valleys or plains just beyond the limits of zone O, then none of the compensation of the mountains would be distributed to the valleys or plains, and the computed value of gravity at the station would be too small. Therefore, in making the reductions by the regional method the compensation for each topographic feature should be distributed separately before making the computations to obtain its effect. This, of course, would be possible, but it would be such a laborious process that it would not be practicable.

RELATION OF LOCAL-COMPENSATION ANOMALIES AND REGIONAL-COMPENSATION ANOMALIES TO THE TOPOGRAPHY.

The tables given in the following pages contain the anomalies computed by the local and the three regional methods, with the stations arranged according to the same topographic groupings as are shown on pages 63 to 67.

Local and regional anomalies at 18 coast stations arranged in the order of their distances from the 1000-fathom line.

Number and name of station.	Hayford anomaly, 1912 (local compensation)	Anomaly with regional compensation within outer limit of—		
		Zone K	Zone M	Zone O
54. San Francisco, Cal	−0.023	−0.023	−0.022	−0.047
18. Beaufort, N. C	− .021	− .021	− .021	− .033
80. Astoria, Oreg	− .013	− .013	− .010	− .021
90. Virginia Beach, Va	− .048	− .048	− .048	− .050
92. Fernandina, Fla	+ .010	+ .010	+ .010	+ .009
1. Key West, Fla	+ .008	+ .008	+ .006	− .003
8. Point Isabel, Tex	+ .027	+ .027	+ .027	+ .024
5. New Orleans, La	− .013	− .013	− .013	− .013
4. Apalachicola, Fla	.000	.000	.000	.000
27. New York, N. Y	+ .022	+ .022	+ .023	+ .025
26. Hoboken, N. J	+0.024	+0.024	+0.025	+0.028
66. Compton, Cal	− .050	− .049	− .048	− .037
2. West Palm Beach, Fla	+ .018	+ .017	+ .016	+ .016
3. Punta Gorda, Fla	+ .010	+ .010	+ .010	+ .010
29. Boston, Mass	+ .005	+ .005	+ .006	+ .008
30. Cambridge, Mass	+ .005	+ .005	+ .006	+ .007
17. Charleston, S. C	− .021	− .021	− .021	− .022
7. Galveston, Tex	− .009	− .009	− .009	− .009
Mean with regard to sign	− .004	− .004	− .004	− .006
Mean without regard to sign	.018	.018	.018	.020

For coast stations the mean anomalies with and without regard to sign are the same for local and for regional compensation through zones K and M. In no case does a regional anomaly with compensation out through zones K and M differ more than 0.003 dyne from a local compensation anomaly. This is as one might expect, for the topography is low and the water within zone M is comparatively shallow, so the distribution of compensation regionally can have little influence on the value of the effect of the compensation.

The anomalies for regional compensation to the outer limit of zone O have decidedly larger negative values than those for local compensation at San Francisco (No. 54), at Beaufort (No. 18), and at Astoria (No. 80), while at Key West (No. 1) the anomaly changes from +0.008 to −0.003. These decided differences are to be expected for a portion of the compensation under the water, which is of positive sign, is distributed through the zone, and as the vertical component of its attraction is greater for the regional distribution than for the local it increases the computed value of gravity at the station and hence makes the anomaly $g - g_c$ have a smaller positive or a larger negative value.

The anomaly at Compton (No. 66) is changed in the opposite direction. This is due to the distribution of the compensation for the high land, which decreases the computed value of the intensity of gravity at the station.

The mean anomaly with regard to sign for regional compensation to the outer limit of zone O is −0.006, while the mean for local compensation is −0.004. The means without regard to sign for these anomalies are, respectively, 0.020 and 0.018. The differences are small but they do not favor distribution of compensation regionally to the outer limit of zone O.

The reason why the mean with regard to sign is negative for the Hayford anomalies at coast stations is discussed under the heading "Relation between the gravity anomalies and the geologic formation." (See p. 70.)

The following table gives the local and regional anomalies at stations near the coast, the stations being arranged in the order of their distance from the open coast. These distances are given in the table on page 64.

Local and regional anomalies at 25 stations near the coast, arranged in the order of their distances from the open coast.

Number and name of station	Hayford anomaly, 1912 (local compensation)	Anomaly with regional compensation within outer limit of—		
		Zone K	Zone M	Zone O
31. Calais, Me.	−0.008	−0.008	−0.007	−0.006
25. Princeton, N. J.	− .019	− .018	− .017	− .016
93. Wilmer, Ala.	− .044	− .043	− .043	− .043
23. Baltimore, Md.	− .011	− .010	− .009	− .007
28. Worcester, Mass.	− .020	− .019	− .019	− .021
24. Philadelphia, Pa.	+ .022	+ .023	+ .023	+ .025
124. Port Jervis, N. Y.	− .033	− .032	− .031	− .034
81. Sisson, Cal.	− .010	− .006	− .009	− .018
21. Washington, D. C. (Coast & Geodetic Survey Office)	+ .037	+ .038	+ .039	+ .041
22. Washington, D. C. (Smithsonian Institution)	+ .039	+ .040	+ .041	+ .043
84. Washington, D. C. (Bureau of Standards)	+ .037	+ .038	+ .039	+ .041
91. Durham, N. C.	+ .036	+ .038	+ .038	+ .038
9. Laredo, Tex.	− .020	− .020	− .019	− .020
65. Yuma, Ariz.	+ .009	+ .009	+ .011	+ .015
97. Nacogdoches, Tex.	− .011	− .009	− .008	− .010
123. Albany, N. Y.	−0.043	−0.042	−0.040	−0.038
16. McCormick, S. C.	+ .015	+ .015	+ .016	+ .018
10. Austin, Tex. (Capitol)	− .008	− .008	− .007	− .007
11. Austin, Tex. (University)	− .010	− .010	− .009	− .009
19. Charlottesville, Va.	− .013	− .012	− .012	− .009
32. Ithaca, N. Y.	− .023	− .021	− .021	− .020
94. Aliceville, Ala.	− .017	− .016	− .015	− .015
62. Kerrville, Tex.	+ .031	+ .032	+ .032	+ .025
106. Fort Kent, Me.	− .013	− .012	− .010	− .012
6. Rayville, La.	+ .016	+ .017	+ .017	+ .019
Mean with regard to sign	− .002	− .001	− .001	− .001
Mean without regard to sign	.022	.021	.021	.022

There are only three stations at which there are decided differences between the local and regional anomalies in the above table. These are Sisson (No. 81), where the change is 0.008, Yuma (No. 65), where it is 0.006, and Kerrville (No. 62), where the change is also 0.006.

As practically all of the 25 stations under consideration are in topography with little relief, one would expect the anomalies to be little changed by the different methods of making the reductions. The mean anomalies with and without regard to sign have a total range of only 0.001. These stations, therefore, give no information as to whether one of the methods has any advantage over any other one.

The following table gives the local and regional anomalies at 39 stations in the interior which are not in mountainous regions. The stations are arranged in the order of their elevation above sea level. These elevations are given in the table on page 64.

Local and regional anomalies at 39 stations in the interior, and not in mountainous regions, arranged in the order of elevation.

Number and name of station	Hayford anomaly, 1912 (local compensation)	Anomaly with regional compensation within outer limit of—		
		Zone K	Zone M	Zone O
95. New Madrid, Mo	+0.001	+0.003	+0.004	+0.005
88. Wilson, N. Y	−.010	−.008	−.009	−.004
13. Little Rock, Ark	+.030	+.032	+.033	+.036
87. Potsdam, N. Y	+.021	+.022	+.023	+.021
35. Terre Haute, Ind	−.009	−.009	−.008	−.006
38. St. Louis, Mo	−.005	−.004	−.003	−.003
120. Keithsburg, Ill	−.008	−.007	−.007	−.006
89. Alpena, Mich	−.020	−.021	−.022	−.020
36. Chicago, Ill	−.007	−.008	−.008	−.006
104. Charleston, W. Va	−.024	−.023	−.021	−.016
14. Columbia, Tenn	+.026	+.026	+.026	+.026
33. Cleveland, Ohio	−.003	−.003	−.003	−.003
73. Denison, Tex	+.005	+.005	+.004	+.004
121. Grand Rapids, Mich	+.002	+.003	+.003	+.003
12. McAlester, Okla	−.027	−.026	−.027	−.027
59. Pembina, N. Dak	+.019	+.019	+.020	+.021
34. Cincinnati, Ohio	−.019	−.019	−.020	−.020
74. Minneapolis, Minn	+.059	+.060	+.060	+.061
37. Madison, Wis	−.005	−.004	−.004	−.006
39. Kansas City, Mo	−.016	−.015	−.015	−.015
122. Angola, Ind	+0.011	+0.012	+0.012	+0.010
15. Atlanta, Ga	−.023	−.022	−.021	−.022
119. Fort Dodge, Iowa	+.015	+.017	+.016	+.016
108. Fergus Falls, Minn	−.006	−.005	−.005	−.003
96. Mena, Ark	−.052	−.050	−.051	−.055
60. Mitchell, S. Dak	+.001	+.002	+.004	+.005
58. Ely, Minn	+.023	+.025	+.026	+.021
118. Pierre, S. Dak	+.014	+.015	+.016	+.020
57. Iron River, Mich	+.038	+.039	+.038	+.031
40. Ellsworth, Kans	+.014	+.015	+.015	+.017
107. Prentiss, Wis	+.024	+.025	+.024	+.020
76. Bismarck, N. Dak	+.002	+.003	+.004	+.005
61. Sweetwater, Tex	−.029	−.028	−.028	−.029
77. Hinsdale, Mont	+.029	+.031	+.033	+.038
72. Shamrock, Tex	+.032	+.031	+.032	+.033
83. Paxton, Nebr	−.006	−.004	−.004	−.002
100. Guymon, Okla	−.017	−.015	−.013	−.013
41. Wallace, Kans	−.012	−.012	−.012	−.011
99. Farwell, Tex	−.016	−.015	−.015	−.018
Mean with regard to sign	+.001	+.002	+.002	+.003
Mean without regard to sign	.017	.018	.018	.017

The differences between the anomalies for the local and for the regional compensation to the outer limits of zones K and M are very small, there being only two as great as 0.004 and only five others as great as 0.003.

The differences between the anomalies for local compensation and for regional compensation to the outer limit of zone O are only slightly larger, the maximum difference being 0.009.

As with the stations back from the coast, the differences between the local and regional anomalies may be expected to be small, for the topography in the vicinity of these stations is fairly level.

The means without regard to sign for the different methods are practically the same, while the means with regard to sign differ only slightly. It must be considered that there is no evidence here in favor of either method, although the slight differences in the means with regard to sign favor the local distribution.

There are 22 stations in the United States in mountainous regions and below the general level, the anomalies for which by the local and regional methods of distribution of compensation are given in the following table. The elevations of the stations and the distances of the stations below the general elevation are given in the table on page 66.

Local and regional anomalies at 22 stations in mountainous regions and below the general level, arranged in the order of their distances below the general level.

Number and name of station	Hayford anomaly, 1912 (local compensation)	Anomaly with regional compensation within outer limit of—		
		Zone K	Zone M	Zone O
70. Gallup, N. Mex	−0.013	−0.013	−0.013	−0.020
105. State College, Pa	−.021	−.019	−.019	−.021
67. Goldfield, Nev	−.013	−.013	−.012	−.009
85. North Hero, Vt	+.001	+.002	+.005	+.005
63. El Paso, Tex	+.007	+.008	+.008	+.013
113. Heppner, Oreg	−.027	−.027	−.025	−.016
112. Olympia, Wash	+.033	+.033	+.034	+.044
110. Boulder, Mont	−.015	−.014	−.018	−.013
111. Skykomish, Wash	−.028	−.024	−.028	−.039
117. Guernsey, Wyo	+.036	+.038	+.041	+.046
115. Winnenmucca, Nev	−.009	−.008	−.006	+.003
109. Sheridan, Wyo	+.032	+.033	+.041	+.030
82. Rock Springs, Wyo	+.013	+.011	+.013	+.021
45. Gunnison, Colo	+.020	+.023	+.028	+.018
42. Colorado Springs, Colo	−.007	−.007	−.008	−.008
49. Salt Lake City, Utah	+0.010	+0.012	+0.013	+0.016
44. Denver, Colo	−.016	−.014	−.007	+.001
79. Boise, Idaho	+.008	+.010	+.012	+.022
78. Sandpoint, Idaho	+.002	+.002	+.006	+.011
69. Grand Canyon, Ariz	−.010	−.009	−.009	−.019
46. Grand Junction, Colo	+.024	+.026	+.031	+.038
47. Green River, Utah	−.021	−.018	−.014	−.001
Mean with regard to sign	.000	+.001	+.003	+.006
Mean without regard to sign	.017	.017	.018	.019

The anomalies for the regional compensation to the outer limits of zones K and M are only slightly different from the anomalies for local compensation and the means with regard to sign show only a slight advantage for the local compensation method. The means without regard to sign for the three sets of anomalies are practically the same. But for regional compensation to the outer limit of zone O, there are four anomalies which are larger than the maximum anomaly for local compensation, 0.036. While the average anomaly without regard to sign is nearly the same for the two methods, the mean with regard to sign is zero for local compensation and +0.006 for regional compensation to the outer limit of zone O. This, it is believed, is comparatively strong evidence in favor of local distribution of compensation. This is especially true as the mean with regard to sign for 122 stations, regional compensation considered to the outer limit of zone O (see bottom of table on p. 87), is −0.001. The mean in the above table is, therefore, 0.007 different from the mean of all.

As the compensation of the higher land is brought closer to the station it is natural that the computed gravity at the stations should be less than for the local distribution of the compensation.

The last table of this series gives the local and regional anomalies at 18 stations in mountainous regions which are above the general level. The elevations of the stations above sea level and the distances above the general level are given in the table on page 66.

Local and regional anomalies at 18 stations in mountainous regions and above the general level, arranged in the order of their distances above the general level.

Number and name of station	Hayford anomaly, 1912 (local compensation)	Anomaly with regional compensation within outer limit of—		
		Zone K	Zone M	Zone O
71. Las Vegas, N. Mex.	+0.003	+0.002	+0.003	−0.007
116. Ely, Nev.	− .021	− .020	− .022	− .030
101. Helenwood, Tenn.	+ .040	+ .041	+ .040	+ .037
52. Lower Geyser Basin, Wyo.	− .001	+ .001	.000	− .009
51. Norris Geyser Basin, Wyo.	+ .021	+ .023	+ .022	+ .008
48. Pleasant Valley Junction, Utah	+ .004	+ .005	+ .001	− .008
50. Grand Canyon, Wyo.	− .002	− .001	− .001	− .017
98. Alpine, Tex.	+ .021	+ .024	+ .023	+ .008
64. Nogales, Ariz.	− .050	− .050	− .055	− .057
20. Deer Park, Md.	+ .010	+ .012	+ .007	+ .001
86. Lake Placid, N. Y.	+0.006	+0.007	+0.003	−0.007
103. Hughes, Tenn.	− .029	− .029	− .033	− .042
75. Lead, S. Dak.	+ .052	+ .053	+ .049	+ .039
68. Yavapai, Ariz.	+ .001	+ .001	+ .001	− .007
114. Truckee, Cal.	− .028	− .028	− .032	− .057
55. Mount Hamilton, Cal.	− .003	− .003	− .011	− .018
102. Cloudland, Tenn.	+ .004	+ .002	− .002	− .011
43. Pikes Peak, Colo.	+ .021	+ .013	+ .008	+ .004
Mean with regard to sign.	+ .003	+ .003	.000	− .010
Mean without regard to sign.	.018	.018	.017	.020

This table gives strong evidence that the local compensation and the regional compensation to the outer limits of zones K and M are much nearer the truth than regional compensation to the outer limit of zone O. There is some slight evidence in favor of regional compensation to the outer limit of zone M.

The mean anomaly without regard to sign for regional compensation to the outer limit of zone O is only 0.002 larger than for the local method, but the mean with regard to sign is −0.010 while for the local method it is only +0.003, and the former is 0.009 different from the mean for 122 stations, −0.001 (see p. 87).

The progressive decrease algebraically in the regional anomalies as the radius of distribution of the compensation is increased is what one would naturally expect, for as the compensation is placed farther and farther from the station it has less effect, and so the computed gravity is increased and the anomalies are decreased algebraically.

CONCLUSION.

The evidence and analysis given on pages 85 to 91 lead to the definite conclusion that the local distribution of compensation is much nearer the truth than the regional distribution of the compensation to a distance of 166.7 km. from the stations. This conclusion is based upon the great difference of 0.016 dyne between the mean zone-O anomaly for stations in mountainous regions below the general level and the mean zone-O anomaly at stations in mountainous regions above the general level. The difference between the mean anomalies for the local method for these two groups of stations is only 0.003.

There is no evidence which favors the local as against the regional distribution out through zones K and M. Whether there is some intermediate zone between 58.8 and 166.7 km. which would give as good results as the local distribution could be determined only by further computations.

The discussions under other headings in this report show that the cause of the anomalies is local to a great extent. We are forced to believe that the anomalies can not be materially reduced by any method of regional distribution of the compensation of general application. This fact is clearly shown in the preceding tables, for only occasionally is a large local-compensation anomaly greatly reduced by a regional method of distributing the compensation. More often the regional distribution increases the anomaly.

As stated on page 88, the method employed for the regional distribution is somewhat illogical in that the compensation for each topographic feature is not distributed separately, but the author believes the above conclusions would not be changed if the ideal method were employed.

Chapter VII. EFFECT OF THE ELEVATION OF THE STATION UPON THE INTENSITY OF GRAVITY.

In computing the correction to the intensity of gravity due to the elevation of a station above sea level the well known formula

$$c = -0.0003086\ H$$

was used, c being the correction for height in dynes and H the elevation in meters.

The constant factor of this formula was not questioned during the investigation until it was found that the gravity anomalies were quite different at pairs of stations near each other horizontally, but with a considerable difference in elevation. In the United States there are 3 such pairs of stations and from the report of the International Geodetic Association 9 sets in Europe were selected and the Hayford anomalies were computed for each station involved. Later it was found that there are 2 pairs in India.

There are shown in the following table the data for each of the sets. In two cases there are three stations in a set.

The density is given for information only. Its value is taken from reports of the International Geodetic Association. The corrections for topography and isostatic compensation are all based on the same density, 2.67.

Sets of adjacent stations having great differences of elevation.

	Sets of stations	Latitude	Longitude	H	Density	$g-g_0$	Hayford anomaly, 1912
		° ′	° ′	*Meters.*			
1	Stilfserjoch, Austria	46 31.8	10 27.4	2760	2.4	−0.010	−0.018
	Franzenhöhe, Austria	46 32.0	10 29.0	2188	2.4	− .014	− .022
2	Schneekoppe, Germany	50 44.2	15 44.6	1605	2.73	+ .029	+ .021
	Alter Bruch, Germany	50 45.7	15 44.6	917	2.65	+ .019	+ .011
3	Brocken, Germany	51 48.0	10 37	1140	2.6	+ .053	+ .045
	Scharfenstein, Germany	51 50.0	10 36.0	623	2.6	+ .052	+ .044
4	Naye, Switzerland	46 26.0	6 58.7	1987	2.7	+ .026	+ .018
	Villeneuve, Switzerland	46 24.1	6 55.7	376	2.6	+ .019	+ .011
5	Chaumont, Switzerland	47 01.4	6 57.1	1018	2.7	+ .044	+ .036
	Neuenburg, Switzerland	47 00.1	6 57.3	487	2.7	+ .032	+ .024
6	Gornergrat, Switzerland	45 59.0	7 46.8	3016	2.73	+ .053	+ .045
	Riffelberg, Switzerland	45 59.6	7 45.3	2566	2.74	+ .055	+ .047
	Zermatt, Switzerland	46 01.5	7 45.0	1603	2.76	+ .044	+ .036
7	Belalp, Switzerland	46 22.9	7 59.6	2132	2.65	+ .010	+ .002
	Brig, Switzerland	46 19.7	8 00.4	683	2.72	− .004	− .012
8	Eggishorn, Switzerland	46 25.2	8 06.8	2187	2.65	+ .013	+ .005
	Fiesch, Switzerland	46 24.2	8 08.1	1049	2.65	.000	− .008
9	Sanetsch, Switzerland	46 19.3	7 17.2	2041	2.70	+ .020	+ .012
	Gsteig, Switzerland	46 23.2	7 16.2	1185	2.63	+ .021	+ .013
10	Pikes Peak, Colo	38 50.3	105 02.0	4293	2.62	+ .029	+ .021
	Colorado Springs, Colo	38 50.7	104 49.0	1841	2.4	+ .001	− .007
11	Yavapai, Ariz	36 03.9	112 07.1	2179	....	+ .009	+ .001
	Grand Canyon, Ariz	36 05.3	112 06.8	849	....	− .002	− .010
12	Cloudland, Tenn	36 06.2	82 07.9	1890	....	+ .012	+ .004
	Hughes, Tenn	36 06.5	82 07.2	994	....	− .021	− .029
13	Mussoorie (Camels Back), India	30 27.6	78 04.5	2110	(2.8)	+ .055	+ .047
	Rajpur, India	30 24.2	78 05.8	1012	2.5	+ .027	+ .019
	Dehra Dun, India	30 19.5	78 03.2	682	2.45	+ .006	− .002
14	Yercaud, India	11 46.9	78 12.5	1369	2.7	− .031	− .039
	Salem, India	11 40.1	78 09.2	280	2.6	− .048	− .056

The following table shows the difference in elevation of the stations forming a set and the differences in the anomalies for each set. There are two cases where there are three stations in a set. In one case (set No. 6) the mean of the two high stations was used in getting the differences in elevation and anomaly and in the other case (set No. 13) the mean of the two low stations was used:

Differences of elevations and anomalies for sets of near stations.

Set No.	Difference of elevation high—low	Difference of anomalies high—low	Set No.	Difference of elevation high—low	Difference of anomalies high—low
	Meters.	*Dynes.*		*Meters.*	*Dynes.*
1	572	+0.004	9	856	−0.001
2	688	+ .010	10	2452	+ .028
3	517	+ .001	11	1320	+ .011
4	1611	+ .007	12	896	+ .033
5	531	+ .012	13	1263	+ .039
6	1188	+ .010	14	1080	+ .017
7	1449	+ .014			
8	1158	+ .013	Total	15571	+ .198

It is seen that in only one case is the difference in anomaly negative, and this difference is only 0.001 dyne. On an average a difference in elevation of 100 meters causes a difference in the anomalies of 0.0013 dyne; and a difference of anomaly of 0.0010 dyne is caused by a difference in elevation of 79 meters.

If a change of 0.0000130 in the constant term of the height formula were made, the resulting formula, $c = -0.0002956\ H$, would make the total difference in the anomalies with regard to sign equal to zero.

The derivation of the constant term of the formula from the observed value of gravity at 124 stations in the United States made its value 0.0003066, with a probable error of ±0.0000017. That the height formula is in error by such an amount as the 0.0000130 indicated by the above data is improbable for two reasons: First, because if the changed height formula were used in computing the correction for elevation for the United States stations, there would be a strong relation between the elevation of the stations and the gravity anomaly. The higher the station the less algebraically would be its anomaly, while with the unchanged formula there is no apparent relation between the anomalies and the elevation. Second, a very careful and thorough investigation was made by W. D. Lambert, of the Survey, which failed to disclose any flaws in the derivation of the constant factor of the formula.

An investigation of the subject along other lines was made, and it was found that there are several causes to which may be due some of the difference in the anomalies at high and low stations which are horizontally close together.

First. In general the higher station of a pair is on a mountain peak which has comparatively steep slopes. The corrections for topography were computed by the zone method, the average elevation in the zone being used in the computations. This has the effect of lessening the effect of the closer part of the topography in the zone, as the leveling method involved in assuming a uniform average level for the whole zone lowers the nearby topography and increases its distance from the station. A test was made of the effect of using narrower zones from the station out to a distance of 2.29 km. The tables for these zones are shown on pages 11 to 18. When the effect of the topography near the high station was computed with the narrower zones for station Pikes Peak, a difference of 0.0033 dyne was found. At station Yavapai, Ariz., the difference was found to be 0.0031. The sign of this difference is such as to bring the two anomalies for a pair of stations nearer together.

Second. It may be assumed that in general the higher station of a pair is on topography of greater density than the lower one. The former is usually on a mountain peak which is composed of well-compacted matter, while the lower station is in a valley or in the foothills, where the material is not so well compacted and has much more porosity than the higher mountain mass. It is sometimes true that the two stations of a pair are on different geologic formations. The higher station in general is on the older formation with a greater density.

If it is assumed that the high station is on topography which has a density 0.10 greater than the assumed normal (2.67) and that the lower station is on material 0.10 less than normal, and that these densities obtain for all the topography above sea level, then the topography for the area near the high station would have a greater effect than that which has been used in this investigation, and, conversely, the topography at the lower station would have a less effect than normal.

This is shown in a clear manner by making the changes in density at Pikes Peak and Colorado Springs. The change in the effect of the topography within a radius of 3.5 km. due to increasing its density 0.10 is +0.0085 dyne, while the change from decreasing the density at Colorado Springs by 0.10 is −0.0057. The sum of the two changes in topographic effect is +0.014. The difference between the anomalies at these two stations is 0.028 dyne. The changes in density in the topography near each of the stations reduced by one-half the difference between the anomalies. The changes at the two stations Cloudland and Hughes would be +0.0054 and −0.0035, respectively, and the difference of the anomalies at the two stations would be reduced from 0.033 to 0.024.

In practically all cases the difference in the existing anomalies at two close stations, as shown in the table on page 93, would be reduced by increasing the density of the topography at the high station and decreasing the density of the topography at the low one. The only exception to this general rule is pair No. 9 in the above table. Here the lower station has the larger anomaly, but the difference between the two anomalies is only 0.001 dyne.

It is scarcely possible to make a correction for erroneous density of topography used in the regular reductions, for even if the density of the surface rocks were known one would not be justified in assuming that the density of the surface obtained to any given depth below the surface.

Third. Another correction could be applied to the combined effect of topography and compensation at a station which would make the difference smaller between the anomalies at a pair of stations close together horizontally but with different elevations. In making the tables for computing the effect of topography and compensation it was assumed that the compensation began at the surface and extended to a depth of 113.7 km. This was done to facilitate the computation, although it does not seem to be a reasonable assumption. It is more probable that the compensation begins at sea level or at some lower depth. If it is assumed that the compensation begins at sea level, then the effect of compensation for the topography near the station above sea level is less than when computed by the usual method.

If the average elevation of the topography in a near zone is 1900 meters (6200 feet), then the change in the effect of the compensation will be one-sixtieth of the effect of the topography in that zone. The approximate general rule is that the effect of compensation of topography near the station will be reduced by an amount equal to the product of the elevation of a zone by the correction for topography for the zone divided by the depth of compensation.

Let us apply this at Pikes Peak. The elevations for zones C, D, E, and F are, respectively, 4300, 4100, 3900, and 3700 meters. The corrections for topography for those zones are, respectively, +0.0165, +0.0325, +0.0545, and +0.0639 dyne. The change in the compensation for the four zones is 0.008, and this is the amount the effect of compensation at Pikes Peak is reduced. There would be a further reduction in the compensation if the test were made for a few zones beyond zone F. The effect of the change at a single station becomes zero in general at about zones J or K. For the outer zones the effect is small for any one station and for a pair of stations the effect on the relative anomaly is negligible.

At Colorado Springs, the lower station of the pair, the average elevation of the topography out to the limits of zone F is about 1800 meters, and the change in the effect of compensation by having it distributed from sea level for zones A to F is 0.002 dyne. The total effect on the difference in the anomalies of changing the position of the upper surface of the compensation at Pikes Peak and Colorado Springs would be about 0.010 dyne. The reduction of the differences at other pairs of stations in this country and abroad would be less than this, in most cases much less.

If the depth of compensation were materially reduced, say, to 60 km., then the effect of starting the distribution of the compensation at the sea level rather than at the surface would be about double what it would be for the depth 113.7 km.

The table on pages 103–105 shows that if the depth of compensation were 127.9 km. the difference in the anomalies at Pikes Peak and Colorado Springs would be reduced to 0.026 dyne, and it would be further reduced to 0.021 dyne if the depth were 184.6 km. If the depth were 42.6 km., the difference in the anomalies at those stations would be increased to 0.051 dyne. For 85.3 km. it would be 0.033 dyne. A change in the depth makes practically no change in the difference between the anomalies at the pair of stations Cloudland and Hughes. The discussion on page 111 indicates that a depth greater than 130 km. is very improbable.

If the compensation has a regional distribution rather than a local distribution, then the anomaly will be reduced at Pikes Peak, it will remain about the same at Colorado Springs, and the difference in the anomalies at the two stations will be considerably reduced. If the distribution of compensation is regional to the outer limit of zone O (167 km.), the difference in the anomalies will be reduced from 0.028 to 0.012 dyne. It would be 0.016 dyne for regional distribution to the outer limit of zone M (59 km.). The regional distribution of the compensation does not materially reduce the difference in anomalies for the pair of stations Cloudland and Hughes and for the pair Yavapai and Grand Canyon. The effect of regional distribution at the pairs of stations not in the United States has not been computed. On page 91 it is shown that the regional distribution of the compensation to a distance of 167 km. is not so probable as the regional distribution to a much shorter distance or as the local distribution of the compensation.

We may conclude that the systematic difference in the anomalies at a pair of stations close together, with one high and one low station, is not due to error in the height formula nor to error in the assumed depth of compensation, but that it is due in part to errors in the assumed densities of the topography under the stations, to deviations from the normal densities in the material below sea level and in the upper crust, to the use of wide zones in computing the effect of the topography, to the probably erroneous assumption that the compensation begins at the surface of the topography, and to the assumption of local distribution of the compensation. That the cause is located in the upper crust rather than in the lower crust is evident from the fact that any deviation from the normal conditions in the lower crust would affect each of the two stations of a pair equally, or very nearly so. It is probable that the effect of any one of these causes varies considerably for the different pairs. It would be impossible to arrive at the true effect of each one of the causes for any pair except the effect of the use of the wide zones. The difference in the anomalies is probably due to the combined effect of all of the causes.

Chapter VIII.—EFFECT ON THE INTENSITY OF GRAVITY OF CHANGES IN THE DEPTH OF COMPENSATION.

On pages 103 to 105 of Special Publication No. 10, "The effect of topography and isostatic compensation on the intensity of gravity," is a discussion of some preliminary tests of the effect of a change in the assumed depth of compensation on the gravity anomalies. The conclusion reached was that the available gravity stations probably would not determine a depth that could compete in accuracy with the depths determined from deflections of the plumb line. The further accumulation of material and the further study of the question have brought about a partial revision of this conclusion.

To study the effect of a change in the depth of compensation it is necessary to have the effects of topography and isostatic compensation for different depths. To make these computations with complete theoretic accuracy would require a great amount of labor, even if there were available complete sets of tables similar to those on pages 30 to 47 of Special Publication No. 10, but computed for depths other than 113.7 km. This labor was greatly lessened by the adoption of the approximations below. The results of the computations are given on pages 100–102.

The effect of topography is not altered by a change of depth, but the compensation, and therefore the resultant, changes with the changing depth. The method of computation consists in multiplying either the compensation or the resultant of the topography and compensation by a factor depending on the depth and on the zone involved.

In the tables on pages 30 to 43 of Special Publication No. 10, the correction for elevation of the station above or below the compartment is, strictly speaking, the correction to the combined effect of topography and compensation, but most of the correction is due to the change in the effect of the topography and the part due to the change in the effect of the compensation is relatively small. The change with changing depth in the part due to compensation will generally be smaller still. Neglecting this—that is, considering the compartment to be on the same level as the station—the formula for the compensation C is

$$C=2\pi k\delta\left\{c_2-c_1-\sqrt{c_2^2+t^2}+\sqrt{c_1^2+t^2}\right\}$$

in which k is the gravitation constant, c_1 and c_2 are the inner and outer radii of the zone, and t is the depth of compensation. δ is the density of compensation and for land compartments is given by the formula, $\delta=2.67\frac{h}{t}$, where h is the mean elevation of the compartment, the density of the topography being assumed as 2.67. If C_o denote the compensation for depth 113.7 and C_d the compensation for any other depth, it is evident that $\frac{C_d}{C_o}$ or $\frac{C_d-C_o}{C_o}$ is independent of h, the elevation of the compartment, and also of the assumed density of the topography, and depends only on the two depths involved. The quantity $\frac{C_d-C_o}{C_o}$ was computed for an arbitrary elevation of compartment but applies equally well to any elevation and was so used. It is the factor which multiplied by C_o will give the correction to be added algebraically to C_o to give C_d, the compensation at the new depth. The values of $\frac{C_d-C_o}{C_o}$ for various depths of compensation are shown in the following tables for zones A to O. In interpolating values of $\frac{C_d-C_o}{C_o}$ for depths near 113.7 km., it should be remembered that $\frac{C_d-C_o}{C_o}$ is zero for this depth.

Factors, $\frac{C_d-C_o}{C_o}$, *used in computing compensation for the given depths.*

Zone	Factors for depth of compensation of—					
	42.6 km.	56.9 km.	85.3 km.	127.9 km.	156.25 km.	184.6 km.
A	+1.67	+1.00	+0.33	−0.11	−0.27	−0.38
B	+1.67	+1.00	+ .33	− .11	− .27	− .38
C	+1.66	+1.00	+ .33	− .11	− .27	− .38
D	+1.65	+1.00	+ .33	− .11	− .27	− .38
E	+1.63	+ .98	+ .33	− .11	− .27	− .38
F	+1.60	+ .97	+ .33	− .11	− .27	− .38
G	+1.55	+ .95	+ .32	− .11	− .26	− .38
H	+1.49	+ .92	+ .32	− .11	− .26	− .37
I	+1.39	+ .87	+ .31	− .10	− .26	− .37
J	+1.24	+ .80	+ .29	− .10	− .25	− .36
K	+1.03	+ .70	+ .27	− .10	− .24	− .35
L	+ .73	+ .55	+ .23	− .09	− .22	− .32
M	+ .22	+ .24	+ .14	− .06	− .17	− .26
N	− .23	− .10	.00	− .02	− .07	− .14
O	− .45	− .31	− .11	+ .03	+ .06	+ .05

The factors in this table were also applied to ocean compartments, although the compensation which begins at the bottom of the ocean is never on the same level as the station. The error, however, is not large. For ocean compartments the density is 0.615 times that of a land compartment when the height of the land is equal to the depth of the ocean compartment. The sign of the density is reversed.

For the outer zones, numbers 1 to 18, a correction factor is applied to the resultant effect, R, of the topography and compensation. This resultant is proportional to the elevation of the compartment, or

$$R = ph^*$$

in which h is the elevation of the compartment and p is a factor of proportionality given in the tables in Special Publication No. 10, and there computed by the method of quadratures.† If a subscript zero denote the values of R and p for depth 113.7 km., and the same letters with subscript d the corresponding quantities for another depth, then

$$\frac{R_d-R_o}{R_o}=\frac{p_d-p_o}{p_o}$$

or the correction factor, $\frac{R_d-R_o}{R_o}$, is independent of the height of the compartment, though for convenience in computing a standard height was assumed. The values of this factor for various depths are given in the following table. The factors are to be multiplied by the resultant of the topography and compensation for depth 113.7 km. in the same way as the factors in the preceding table are to be multiplied by the compensation and give the correction to be added algebraically to the resultant for the depth 113.7 km. to obtain the resultant for the particular depth in question.

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* The corrections for departures from proportionality and for elevation of station which occur in zones 14–18 are neglected as unimportant.

† The resultant might have been found mathematically by integration, but this was not discovered until Special Publication No. 10 was in press. The formula of integration and the tables for its use (based on zones different from those used by the Coast and Geodetic Survey) are given by G. Cassinis in publication entitled "Sull 'Applicazione del Metodo Isostatico alle Riduzione delle Misure di Gravità," Rome, 1911. In computing the density of compensation of his outer zones I to XX, Cassinis neglects the convergence of the verticals bounding the compensation, and his density of compensation should be multiplied by approximately 1.019. Although this error is less than 2 per cent of the compensation, since topography and compensation are large and nearly equal for distant zones, it completely falsifies the resultant for these zones. This error is repeated in the publication by Reina and Cassinis, "Determinazione di Gravità Relativa compiute nel 1912 a Roma, Arcetri, Livorno, Genova, Vienna e Potsdam," Rome, 1913. This error was corrected before use was made in this publication of the computed reductions for topography and isostatic compensation given in the publication just mentioned. (See p. 57.)

In Gerland's "Beiträge zur Geophysik" Band XII, pp. 588–638, there is an extended discussion of formulas by Erich Hübner entitled, "Beitrag zur Theorie der isostatischen Reduktion der Schwerebeschleunigungen." On p. 638 he notes an error of 2 per cent in the tables of Special Publication No. 10, due to neglecting the convergence of the verticals. This error is, however, 2 per cent of the small resultant for any compartment, not 2 per cent of the compensation, and may, therefore, be neglected.

Factors, $\frac{R_d - R_0}{R_0}$, used in computing resultant of topography and compensation for given depths.

Zone	Factors for depth of compensation of—					
	42.6 km.	56.9 km.	85.3 km.	127.9 km.	156.25 km.	184.6 km.
18	−0.53	−0.41	−0.17	+0.06	+0.14	+0.19
17	− .56	− .42	− .18	+ .07	+ .18	+ .24
16	− .57	− .43	− .19	+ .08	+ .21	+ .30
15	− .58	− .45	− .21	+ .09	+ .24	+ .36
14	− .59	− .46	− .22	+ .10	+ .27	+ .41
13	− .61	− .47	− .23	+ .11	+ .30	+ .48
12	− .62	− .49	− .24	+ .12	+ .34	+ .54
11	− .62	− .49	− .24	+ .12	+ .35	+ .57
10	− .62	− .50	− .24	+ .13	+ .36	+ .59
9	− .62	− .50	− .24	+ .13	+ .37	+ .62
8	− .63	− .50	− .25	+ .13	+ .38	+ .63
7	− .63	− .50	− .25	+ .13	+ .38	+ .63
6	− .63	− .50	− .25	+ .13	+ .38	+ .63
5	− .63	− .50	− .25	+ .13	+ .38	+ .63
4	− .63	− .50	− .25	+ .13	+ .38	+ .63
3	− .63	− .50	− .25	+ .13	+ .38	+ .63
2	− .63	− .50	− .25	+ .13	+ .38	+ .63
1	− .63	− .50	− .25	+ .13	+ .38	+ .63

An example of the use of these tables is given below. The quantities in the second and third columns are taken from page 42 and are multiplied by the factors in the tables on page 98 and above and the products are placed in the appropriate column. The total of these products for a given depth is the correction to be applied to the effect of topography and isostatic compensation for depth 113.7 km. in order to obtain the effect for the depth in question.

In the same way the computations for other stations in the United States have been made, and the results to three decimals of dynes are shown on pages 100–102.

Corrections for change of depth, station 195, Lander, Wyo.

[These corrections are in units of the fourth decimal place in dynes and are to be added algebraically to the effects of topography and compensation for the depth 113.7 km. to obtain the effects at other depths.]

Zone	Compensation only 113.7 km.	Resultant, topography and compensation 113.7 km.	Correction for depth—					
			42.6 km.	56.9 km.	85.3 km.	127.9 km.	156.25 km.	184.6 km.
A	0		0	0	0	0	0	0
B	0		0	0	0	0	0	0
C	− 4		− 7	− 4	− 1	0	+ 1	+ 2
D	− 6		− 10	− 6	− 2	+ 1	+ 2	+ 2
E	− 8		− 13	− 8	− 3	+ 1	+ 2	+ 3
F	− 20		− 32	− 19	− 7	+ 2	+ 5	+ 8
G	− 24		− 37	− 23	− 8	+ 3	+ 6	+ 9
H	− 32		− 48	− 29	− 10	+ 4	+ 8	+ 12
I	− 43		− 60	− 37	− 13	+ 4	+ 11	+ 16
J	− 66		− 82	− 53	− 19	+ 7	+ 16	+ 24
K	−109		−112	− 76	− 29	+ 11	+ 26	+ 38
L	−158		−115	− 87	− 36	+ 14	+ 35	+ 51
M	−425		− 94	−102	− 60	+ 28	+ 72	+110
N	−373		+ 86	+ 37	0	+ 7	+ 26	+ 52
O	−341		+153	+106	+ 37	− 10	− 20	− 17
18		− 68	+ 36	+ 28	+ 12	− 4	− 10	− 13
17		− 68	+ 38	+ 29	+ 12	− 5	− 12	− 16
16		− 71	+ 40	+ 31	+ 14	− 6	− 15	− 21
15		− 66	+ 38	+ 30	+ 14	− 6	− 16	− 24
14		− 61	+ 36	+ 28	+ 13	− 6	− 16	− 25
13		− 88	+ 54	+ 41	+ 20	− 10	− 26	− 42
12		− 51	+ 32	+ 25	+ 12	− 6	− 17	− 28
11		− 37	+ 23	+ 18	+ 9	− 4	− 13	− 21
10		− 17	+ 11	+ 8	+ 4	− 2	− 6	− 10
9		0	0	0	0	0	0	0
8		+ 8	− 5	− 4	− 2	+ 1	+ 3	+ 5
7		+ 7	− 4	− 4	− 2	+ 1	+ 3	+ 4
6		+ 9	− 6	− 4	− 2	+ 1	+ 3	+ 6
5		+ 9	− 6	− 4	− 2	+ 1	+ 3	+ 6
4		+ 8	− 5	− 4	− 2	+ 1	+ 3	+ 5
3		+ 5	− 3	− 2	− 1	+ 1	+ 2	+ 3
2		+ 3	− 2	− 2	− 1	0	+ 1	+ 2
1		+ 1	− 1	0	0	0	0	+ 1
Total			− 95	− 87	− 53	+ 27	+ 77	+142
Total topography and compensation, 113.7 km			−275	−275	−275	−275	−275	−275
Total topography and compensation at given depth			−370	−362	−328	−248	−198	−133

The following table gives the effect of topography and compensation for each of the 219 stations in the United States for various depths.

Corrections for topography and isostatic compensation for given depths of compensation.

Number and name of station	Depth, 42.6 km.	Depth, 56.9 km.	Depth, 85.3 km.	Depth, 113.7 km.	Depth, 127.9 km.	Depth, 156.25 km.	Depth, 184.6 km.
1. Key West, Fla.	+0.017	+0.022	+0.029	+0.035	+0.038	+0.043	+0.047
2. West Palm Beach, Fla.	+ .016	+ .019	+ .025	+ .031	+ .033	+ .038	+ .043
3. Punta Gorda, Fla.	+ .008	+ .010	+ .016	+ .020	+ .023	+ .027	+ .031
4. Apalachicola, Fla.	+ .006	+ .008	+ .012	+ .015	+ .017	+ .020	+ .023
5. New Orleans, La.	+ .005	+ .007	+ .010	+ .013	+ .015	+ .017	+ .020
6. Rayville, La.	+ .005	+ .005	+ .006	+ .008	+ .008	+ .010	+ .011
7. Galveston, Tex.	+ .003	+ .004	+ .006	+ .007	+ .008	+ .010	+ .011
8. Point Isabel, Tex.	+ .007	+ .009	+ .013	+ .015	+ .017	+ .019	+ .021
9. Laredo, Tex.	+ .004	+ .005	+ .003	+ .003	+ .003	+ .004	+ .006
10. Austin, Tex. (capitol)	− .005	− .005	− .004	− .003	− .002	− .004	.000
11. Austin, Tex. (university)	− .003	− .003	− .002	− .001	− .001	+ .001	+ .002
12. McAlester, Okla.	.000	.000	.000	+ .001	+ .001	+ .002	+ .003
13. Little Rock, Ark.	+ .003	+ .002	+ .001	+ .001	+ .001	+ .002	+ .003
14. Columbia, Tenn.	+ .003	+ .003	+ .004	+ .006	+ .007	+ .009	+ .011
15. Atlanta, Ga.	+ .008	+ .009	+ .012	+ .014	+ .015	+ .018	+ .021
16. McCormick, S. C.	+ .008	+ .008	+ .009	+ .012	+ .014	+ .016	+ .019
17. Charleston, S. C.	+ .006	+ .008	+ .012	+ .016	+ .018	+ .021	+ .024
18. Beaufort, N. C.	+ .015	+ .020	+ .028	+ .036	+ .040	+ .046	+ .051
19. Charlottesville, Va.	− .002	− .002	.000	+ .002	+ .004	+ .007	+ .010
20. Deer Park, Md.	+ .021	+ .026	+ .035	+ .041	+ .044	+ .049	+ .054
21. Washington, D. C. (Coast and Geodetic Survey Office)	.000	+ .001	+ .002	+ .004	+ .005	+ .007	+ .010
22. Washington, D. C. (Smithsonian Institution)	− .001	.000	+ .001	+ .003	+ .005	+ .007	+ .010
23. Baltimore, Md.	+ .001	+ .001	+ .003	+ .006	+ .007	+ .009	+ .012
24. Philadelphia, Pa.	+ .003	+ .004	+ .006	+ .009	+ .011	+ .014	+ .017
25. Princeton, N. J.	+ .007	+ .008	+ .010	+ .013	+ .015	+ .017	+ .021
26. Hoboken, N. J.	+ .001	+ .002	+ .005	+ .008	+ .010	+ .012	+ .016
27. New York, N. Y.	+ .004	+ .005	+ .007	+ .011	+ .012	+ .015	+ .019
28. Worcester, Mass.	+ .007	+ .010	+ .013	+ .018	+ .020	+ .024	+ .028
29. Boston, Mass.	+ .005	+ .007	+ .010	+ .013	+ .015	+ .018	+ .022
30. Cambridge, Mass.	+ .002	+ .003	+ .007	+ .010	+ .012	+ .015	+ .019
31. Calais, Me.	+ .005	+ .006	+ .008	+ .010	+ .012	+ .013	+ .016
32. Ithaca, N. Y.	− .001	.000	+ .002	+ .005	+ .006	+ .009	+ .012
33. Cleveland, Ohio	− .002	− .002	− .002	.000	+ .001	+ .002	+ .003
34. Cincinnati, Ohio	+ .001	.000	+ .001	+ .002	+ .003	+ .005	+ .007
35. Terre Haute, Ind.	.000	.000	.000	+ .001	+ .001	+ .002	+ .003
36. Chicago, Ill.	+ .007	+ .007	+ .006	+ .007	+ .008	+ .009	+ .011
37. Madison, Wis.	+ .001	+ .001	+ .002	+ .003	+ .004	+ .005	+ .007
38. St. Louis, Mo.	+ .002	+ .001	+ .001	+ .001	+ .001	+ .002	+ .002
39. Kansas City, Mo.	.000	− .001	− .002	− .001	− .001	− .001	.000
40. Ellsworth, Kans.	− .003	− .004	− .004	− .004	− .004	− .004	− .003
41. Wallace, Kans.	− .007	− .006	− .003	.000	+ .001	+ .003	+ .006
42. Colorado Springs, Colo.	− .024	− .020	− .014	− .007	− .004	+ .002	+ .010
43. Pikes Peak, Colo.	+ .147	+ .159	+ .175	+ .187	+ .192	+ .201	+ .211
44. Denver, Colo.	− .015	− .017	− .018	− .015	− .013	− .009	− .004
45. Gunnison, Colo.	− .024	− .021	− .012	− .001	+ .004	+ .013	+ .024
46. Grand Junction, Colo.	− .050	− .053	− .054	− .051	− .049	− .046	− .040
47. Green River, Utah	− .036	− .040	− .043	− .043	− .043	− .041	− .038
48. Pleasant Valley Junction, Utah	− .002	+ .004	+ .014	+ .024	+ .028	+ .035	+ .042
49. Salt Lake City, Utah	− .044	− .044	− .044	− .041	− .040	− .037	− .032
50. Grand Canyon, Wyo.	+ .009	+ .015	+ .027	+ .038	+ .043	+ .051	+ .060
51. Norris Geyser Basin, Wyo.	+ .005	+ .011	+ .021	+ .031	+ .036	+ .044	+ .052
52. Lower Geyser Basin, Wyo.	+ .004	+ .009	+ .018	+ .028	+ .033	+ .040	+ .049
53. Seattle, Wash. (university)	− .012	− .015	− .019	− .020	− .021	− .021	− .020
54. San Francisco, Cal.	+ .024	+ .029	+ .038	+ .045	+ .048	+ .053	+ .058
55. Mount Hamilton, Cal.	+ .092	+ .100	+ .112	+ .120	+ .124	+ .130	+ .135
56. Seattle, Wash (high school)	− .009	− .013	− .017	− .018	− .018	− .018	− .018
57. Iron River, Mich.	+ .006	+ .008	+ .011	+ .014	+ .016	+ .018	+ .020
58. Ely, Minn.	+ .004	+ .005	+ .007	+ .008	+ .009	+ .010	+ .012
59. Pembina, N. Dak.	− .006	− .007	− .008	− .009	− .009	− .009	− .009
60. Mitchell, S. Dak.	− .004	− .004	− .005	− .006	− .006	− .006	− .006
61. Sweetwater, Tex.	+ .003	+ .005	+ .007	+ .009	+ .010	+ .013	+ .015
62. Kerrville, Tex.	+ .003	+ .006	+ .010	+ .013	+ .015	+ .018	+ .021
63. El Paso, Tex.	− .005	− .004	− .002	+ .001	+ .002	+ .005	+ .009
64. Nogales, Ariz.	+ .020	+ .025	+ .032	+ .038	+ .040	+ .044	+ .049
65. Yuma, Ariz.	− .008	− .009	− .010	− .010	− .010	− .009	− .008
66. Compton, Cal.	− .005	− .004	− .002	.000	+ .002	+ .005	+ .009
67. Goldfield, Nev.	+ .006	+ .012	+ .019	+ .027	+ .031	+ .038	+ .046
68. Yavapai, Ariz.	+ .016	+ .020	+ .027	+ .024	+ .037	+ .042	+ .050
69. Grand Canyon, Ariz.	− .110	− .108	− .102	− .096	− .093	− .088	− .080
70. Gallup, N. Mex.	− .006	− .001	+ .006	+ .014	+ .018	+ .024	+ .032
71. Las Vegas, N. Mex.	− .004	+ .001	+ .009	+ .017	+ .021	+ .027	+ .035
72. Shamrock, Tex.	+ .003	+ .003	+ .005	+ .007	+ .008	+ .010	+ .012
73. Denison, Tex.	− .002	− .002	− .001	− .001	.000	+ .001	+ .002
74. Minneapolis, Minn.	− .004	− .005	− .005	− .005	− .005	− .005	− .004
75. Lead, S. Dak.	+ .025	+ .031	+ .038	+ .044	+ .047	+ .051	+ .055

Corrections for topography and isostatic compensation for given depths of compensation—Continued.

Number and name of station	Depth, 42.6 km.	Depth, 56.9 km.	Depth, 85.3 km.	Depth, 113.7 km.	Depth, 127.9 km.	Depth, 156.25 km.	Depth, 184.6 km.
76. Bismarck, N. Dak	−0.005	−0.005	−0.006	−0.005	−0.005	−0.005	−0.004
77. Hinsdale, Mont	− .012	− .014	− .015	− .017	− .017	− .018	− .017
78. Sandpoint, Idaho	− .042	− .044	− .045	− .044	− .044	− .042	− .040
79. Boise, Idaho	− .035	− .038	− .041	− .042	− .042	− .042	− .040
80. Astoria, Oreg	+ .001	+ .002	+ .005	+ .008	+ .008	+ .011	+ .013
81. Sisson, Cal	− .015	− .008	+ .004	+ .015	+ .020	+ .029	+ .038
82. Rock Springs, Wyo	− .014	− .011	− .007	− .001	+ .001	+ .006	+ .013
83. Paxton, Nebr	.000	− .001	.000	+ .002	+ .002	+ .004	+ .006
84. Washington, D. C. (Bureau of Standards)	+ .008	+ .008	+ .010	+ .012	+ .013	+ .015	+ .018
85. North Hero, Vt	− .007	− .008	− .009	− .009	− .008	− .007	− .005
86. Lake Placid, N. Y	+ .014	+ .019	+ .026	+ .032	+ .034	+ .039	+ .043
87. Potsdam, N. Y	− .007	− .006	− .005	− .004	− .003	− .001	+ .001
88. Wilson, N. Y	.000	− .001	− .002	− .002	− .001	− .001	.000
89. Alpena, Mich	− .004	− .003	− .002	.000	.000	+ .002	+ .003
90. Virginia Beach, Va	+ .010	+ .013	+ .019	+ .025	+ .028	+ .032	+ .037
91. Durham, N. C	+ .009	+ .009	+ .011	+ .014	+ .016	+ .019	+ .022
92. Fernandina, Fla	+ .007	+ .009	+ .013	+ .017	+ .019	+ .023	+ .026
93. Wilmer, Ala	+ .011	+ .013	+ .016	+ .018	+ .019	+ .022	+ .025
94. Aliceville, Ala	+ .006	+ .006	+ .007	+ .008	+ .009	+ .010	+ .012
95. New Madrid, Mo	+ .003	+ .002	+ .001	+ .001	+ .001	+ .001	+ .002
96. Mena, Ark	+ .011	+ .012	+ .013	+ .015	+ .015	+ .017	+ .018
97. Nacogdoches, Tex	+ .007	+ .007	+ .007	+ .008	+ .008	+ .009	+ .010
98. Alpine, Tex	+ .013	+ .017	+ .025	+ .033	+ .036	+ .042	+ .048
99. Farwell, Tex	+ .003	+ .005	+ .008	+ .011	+ .013	+ .016	+ .021
100. Guymon, Okla	− .003	− .004	− .003	− .001	.000	+ .002	+ .005
101. Helenwood, Tenn	+ .005	+ .007	+ .011	+ .015	+ .017	+ .020	+ .024
102. Cloudland, Tenn	+ .102	+ .109	+ .121	+ .130	+ .134	+ .141	+ .147
103. Hughes, Tenn	+ .026	+ .033	+ .044	+ .053	+ .056	+ .063	+ .069
104. Charleston, W. Va	− .011	− .012	− .011	− .010	− .009	− .007	− .004
105. State College, Pa	+ .002	+ .003	+ .006	+ .010	+ .012	+ .015	+ .019
106. Fort Kent, Me	.000	.000	.000	+ .001	+ .002	+ .003	+ .005
107. Prentice, Wis	+ .003	+ .005	+ .008	+ .010	+ .011	+ .013	+ .015
108. Fergus Falls, Minn	+ .002	+ .001	+ .001	+ .001	+ .001	+ .001	+ .002
109. Sheridan, Wyo	− .035	− .036	− .034	− .031	− .029	− .025	− .021
110. Boulder, Mont	− .022	− .019	− .013	− .007	− .005	.000	+ .006
111. Skykomish, Wash	− .063	− .059	− .053	− .047	− .045	− .041	− .037
112. Olympia, Wash	− .008	− .010	− .012	− .012	− .011	− .011	− .009
113. Heppner, Oreg	− .005	− .006	− .007	− .007	− .006	− .005	− .004
114. Truckee, Cal	+ .014	+ .025	+ .043	+ .057	+ .064	+ .074	+ .085
115. Winnemucca, Nev	− .008	− .009	− .007	− .004	− .002	+ .002	+ .008
116. Ely, Nev	− .007	− .001	+ .010	+ .020	+ .025	+ .033	+ .041
117. Guernsey, Wyo	− .015	− .017	− .018	− .016	− .015	− .013	− .010
118. Pierre, S. Dak	− .009	− .010	− .012	− .013	− .013	− .014	− .014
119. Fort Dodge, Iowa	+ .002	+ .002	+ .001	+ .002	+ .002	+ .002	+ .004
120. Keithsburg, Ill	− .005	− .005	− .003	− .003	− .002	− .002	− .001
121. Grand Rapids, Mich	+ .001	+ .001	+ .002	+ .003	+ .004	+ .005	+ .006
122. Angola, Ind	+ .008	+ .008	+ .010	+ .011	+ .012	+ .014	+ .015
123. Albany, N. Y	− .010	− .010	− .009	− .006	− .004	− .001	+ .002
124. Port Jervis, N. Y	− .008	− .006	− .002	+ .003	+ .005	+ .009	+ .013
125. Atlantic City, N. J	+ .007	+ .010	+ .014	+ .018	+ .021	+ .024	+ .028
126. Bridgehampton, N. Y	+ .008	+ .011	+ .016	+ .020	+ .022	+ .026	+ .030
127. Chatham, Mass	+ .010	+ .014	+ .019	+ .024	+ .027	+ .031	+ .036
128. Rockland, Me	+ .004	+ .006	+ .008	+ .011	+ .012	+ .014	+ .017
129. Lancaster, N. H	− .006	− .003	+ .002	+ .007	+ .009	+ .013	+ .017
130. Whitehall, N. Y	− .017	− .016	− .015	− .012	− .011	− .008	− .004
131. Little Falls, N. Y	− .014	− .013	− .010	− .007	− .005	− .001	+ .003
132. Watertown, N. Y	− .002	− .002	− .001	+ .001	+ .002	+ .004	+ .005
133. Southport, N. Y	− .007	− .005	.000	+ .004	+ .006	+ .010	+ .014
134. Erie, Pa	− .002	− .001	.000	+ .001	+ .002	+ .003	+ .005
135. Parkersburg, W. Va	− .010	− .009	− .008	− .006	− .005	− .003	.000
136. Columbus, Ohio	− .002	− .002	− .001	+ .001	+ .002	+ .004	+ .006
137. Indianapolis, Ind	− .001	.000	+ .002	+ .003	+ .004	+ .006	+ .007
138. Springfield, Ill	+ .004	+ .004	+ .004	+ .005	+ .005	+ .006	+ .006
139. Lebanon, Mo	+ .007	+ .008	+ .010	+ .012	+ .012	+ .014	+ .016
140. Joplin, Mo	− .002	− .001	.000	+ .001	+ .001	+ .003	+ .004
141. Fort Smith, Ark	− .006	− .007	− .008	− .007	− .007	− .006	− .005
142. Texarkana, Ark	+ .001	+ .001	.000	+ .001	+ .001	+ .002	+ .002
143. Hot Springs, Ark	+ .002	+ .002	+ .003	+ .004	+ .005	+ .006	+ .008
144. Alexandria, La	+ .005	+ .006	+ .008	+ .009	+ .010	+ .012	+ .013
145. Laurel, Miss	+ .005	+ .006	+ .009	+ .011	+ .013	+ .015	+ .017
146. Richmond, Va	+ .004	+ .005	+ .007	+ .010	+ .011	+ .014	+ .017
147. Emporia, Va	+ .007	+ .009	+ .012	+ .015	+ .017	+ .020	+ .023
148. Greenville, N. C	+ .008	+ .010	+ .015	+ .019	+ .021	+ .025	+ .029
149. Wilmington, N. C	+ .010	+ .013	+ .018	+ .023	+ .026	+ .030	+ .035
150. Cheraw, S. C	+ .006	+ .007	+ .010	+ .013	+ .014	+ .017	+ .021
151. Charlotte, N. C	+ .005	+ .008	+ .011	+ .015	+ .016	+ .020	+ .024
152. Asheville, N. C	+ .004	+ .009	+ .018	+ .026	+ .029	+ .035	+ .041
153. Cleveland, Tenn	− .006	− .004	− .001	+ .002	+ .003	+ .006	+ .009
154. Winston-Salem, N. C	+ .003	+ .005	+ .009	+ .012	+ .014	+ .018	+ .021
155. Knoxville, Tenn	− .007	− .006	− .004	− .001	.000	+ .003	+ .006

Corrections for topography and isostatic compensation for given depths of compensation—Continued.

Number and name of station	Depth, 42.6 km.	Depth, 56.9 km.	Depth, 85.3 km.	Depth, 113.7 km.	Depth, 127.9 km.	Depth, 156.25 km.	Depth, 184.6 km.
156. Bristol, Va	−0.002	+0.001	+0.007	+0.012	+0.014	+0.019	+0.024
157. Homestead, Fla	+ .013	+ .016	+ .024	+ .029	+ .032	+ .037	+ .042
158. Sebring, Fla	+ .010	+ .013	+ .018	+ .023	+ .025	+ .030	+ .034
159. Titusville, Fla	+ .009	+ .012	+ .018	+ .023	+ .025	+ .030	+ .034
160. Leesburg, Fla	+ .009	+ .012	+ .016	+ .021	+ .023	+ .027	+ .031
161. Cedar Keys, Fla	+ .006	+ .008	+ .012	+ .016	+ .018	+ .022	+ .025
162. Macon, Ga	+ .001	+ .002	+ .004	+ .007	+ .008	+ .010	+ .013
163. Albany, Ga	+ .004	+ .005	+ .008	+ .011	+ .012	+ .015	+ .018
164. Pensacola, Fla	+ .005	+ .007	+ .010	+ .014	+ .015	+ .018	+ .020
165. Opelika, Ala	+ .007	+ .009	+ .013	+ .017	+ .018	+ .021	+ .024
166. Huntsville, Ala	− .003	− .002	+ .001	+ .003	+ .005	+ .007	+ .010
167. Arkansas City, Ark	+ .003	+ .003	+ .004	+ .005	+ .005	+ .006	+ .007
168. Memphis, Tenn	+ .001	+ .001	+ .002	+ .002	+ .003	+ .003	+ .004
169. Mammoth Spring, Ark	− .004	− .004	− .003	− .002	− .001	.000	+ .001
170. Hopkinsville, Ky	+ .003	+ .003	+ .005	+ .006	+ .007	+ .008	+ .010
171. Danville, Ky	+ .004	+ .005	+ .008	+ .011	+ .012	+ .015	+ .017
172. Clifton Forge, Va	− .014	− .013	− .007	− .003	.000	+ .005	+ .009
173. Greenville, Ala	+ .009	+ .011	+ .014	+ .016	+ .018	+ .020	+ .022
174. Birmingham, Ala	+ .003	+ .005	+ .008	+ .011	+ .012	+ .014	+ .017
175. Lexington, Va	− .004	− .003	+ .001	+ .005	+ .007	+ .012	+ .016
176. Prestonsburg, Ky	− .010	− .009	− .007	− .004	− .003	− .001	+ .002
177. Traverse City, Mich	+ .001	+ .001	+ .001	+ .002	+ .003	+ .003	+ .004
178. Seney, Mich	+ .004	+ .004	+ .006	+ .007	+ .007	+ .008	+ .010
179. Oconto, Wis	.000	− .001	− .001	− .001	− .001	.000	+ .001
180. Grand Rapids, Wis	+ .002	+ .003	+ .004	+ .005	+ .006	+ .007	+ .009
181. Winona, Minn	− .008	− .008	− .008	− .006	− .006	− .005	− .004
182. Baldwin, Wis	+ .004	+ .005	+ .005	+ .006	+ .006	+ .008	+ .009
183. Cumberland, Wis	+ .005	+ .005	+ .006	+ .008	+ .008	+ .009	+ .011
184. Cambridge, Minn	+ .001	+ .001	+ .002	+ .002	+ .002	+ .003	+ .004
185. Brainerd, Minn	+ .001	+ .001	+ .002	+ .003	+ .003	+ .004	+ .005
186. Aberdeen, S. Dak	− .004	− .004	− .005	− .005	− .005	− .005	− .005
187. Faith, S. Dak	+ .005	+ .005	+ .006	+ .006	+ .006	+ .007	+ .008
188. Marmarth, N. Dak	− .005	− .005	− .004	− .002	− .001	.000	+ .003
189. Towner, N. Dak	− .003	− .004	− .004	− .004	− .005	− .004	− .003
190. Crosby, N. Dak	+ .001	+ .001	+ .001	+ .001	+ .001	+ .001	+ .002
191. Crookston, Minn	− .004	− .005	− .006	− .006	− .007	− .006	− .006
192. Poplar, Mont	− .006	− .007	− .008	− .009	− .009	− .009	− .009
193. Miles City, Mont	− .019	− .020	− .021	− .020	− .020	− .020	− .018
194. Huntley, Mont	− .018	− .020	− .022	− .022	− .022	− .022	− .020
195. Lander, Wyo	− .037	− .036	− .033	− .028	− .025	− .020	− .013
196. Faribault, Minn	− .001	− .001	.000	.000	+ .001	+ .002	+ .003
197. St. James, Minn	+ .001	+ .001	+ .002	+ .002	+ .002	+ .003	+ .004
198. Edgemont, S. Dak	− .013	− .014	− .013	− .012	− .011	− .009	− .006
199. Dawson, Minn	− .003	− .003	− .003	− .003	− .003	− .003	− .002
200. Cokato, Minn	+ .002	+ .002	+ .002	+ .003	+ .003	+ .003	+ .004
201. Wasta, S. Dak	− .010	− .011	− .013	− .013	− .013	− .012	− .012
202. Moorcroft, Wyo	− .001	.000	+ .002	+ .005	+ .006	+ .009	+ .013
203. Duluth, Minn	− .011	− .011	− .011	− .010	− .010	− .009	− .008
204. Osage, Iowa	+ .004	+ .004	+ .006	+ .007	+ .007	+ .009	+ .010
205. Randolph, Nebr	+ .005	+ .005	+ .005	+ .005	+ .006	+ .006	+ .007
206. Valentine, Nebr	.000	.000	+ .002	+ .004	+ .005	+ .006	+ .008
207. Wheeling, W. Va	− .009	− .008	− .006	− .003	− .002	.000	+ .003
208. Leon, Iowa	+ .005	+ .005	+ .006	+ .007	+ .007	+ .009	+ .010
209. Laurel, Md	+ .001	+ .002	+ .005	+ .007	+ .009	+ .011	+ .014
210. Harrisburg, Pa	− .004	− .003	.000	+ .002	+ .004	+ .007	+ .010
211. Pittsburg, Pa	− .005	− .004	− .002	.000	+ .002	+ .004	+ .007
212. Rockville, Md	+ .007	+ .008	+ .011	+ .013	+ .015	+ .017	+ .020
213. Upper Marlboro, Md	+ .001	+ .002	+ .004	+ .007	+ .009	+ .011	+ .014
214. Fairfax, Va	+ .006	+ .007	+ .009	+ .011	+ .012	+ .015	+ .018
215. Crisfield, Md	+ .008	+ .010	+ .014	+ .019	+ .022	+ .025	+ .029
216. Fredericksburg, Va	− .001	.000	+ .002	+ .004	+ .006	+ .008	+ .011
217. Dover, Del	+ .004	+ .006	+ .009	+ .013	+ .014	+ .017	+ .021
218. North Tamarack, Mich	....	+ .018	+ .019	+ .020	....	....	....
219. Hagerstown, Md	− .002	.000	+ .002	+ .006	+ .007	+ .010	+ .014

The above table needs little comment. In general the effect of topography and compensation increases algebraically with an increase in depth. The largest change from depth of 42.6 to 184.6 km. is 0.071 dyne at station 114 (Truckee, Cal.). The next greatest change is 0.064, at station 43 (Pikes Peak, Colo.). There are some other changes of as much as 0.030 dyne. There are a few exceptions to the general rule that the effect of topography and compensation increases algebraically with an increase of depth. At station 56 (Seattle, Wash.) the correction of −0.009 dyne for depth 42.6 km. decreases algebraically to −0.018 dyne for depth 184.6 km. There is no other similar change in the above table greater than 0.005 dyne, except for the other Seattle station, No. 53.

The greatest changes occur at stations near the coast, especially when the deep water is not far distant, and in mountainous regions. Where the topography is comparatively level for some distance around the station, the total range in the values for the various depths is small. At station 40 (Ellsworth, Kans.) it is only 0.001 dyne. At station 191 (Crookston, Minn.) the range is only 0.003 dyne. At station 144 (Alexandria, La.) the range is 0.008 dyne. The average amount of change in the effect of topography and isostatic compensation due to a change in depth from 42.6 km. to 184.6 km. is 0.014 dyne.

GRAVITY ANOMALIES FOR VARIOUS DEPTHS OF COMPENSATION FOR STATIONS IN THE UNITED STATES.

There is given below a table which contains the anomalies of gravity at the 219 stations in the United States for various depths.

Anomalies for various depths of compensation.

Number of station	Depth, 42.6 km.		Depth, 56.9 km.		Depth, 60.0 km.	Depth, 85.3 km.		Depth, 113.7 km.		Depth, 127.9 km.		Depth, 156.25 km.		Depth, 184.6 km.	
	$g-g_0$	$g-(g_0+12)$	$g-g_0$	$g-(g_0+11)$	$g-(g_0+10)$	$g-g_0$	$g-(g_0+9)$	$g-g_0$	$g-(g_0+6)$	$g-g_0$	$g-(g_0+5)$	$g-g_0$	$g-(g_0+2)$	$g-g_0$	$g-(g_0-1)$
1	+0.031	+0.019	+0.026	+0.015	+0.015	+0.019	+0.010	+0.013	+0.007	+0.010	+0.005	+0.005	+0.003	+0.001	+0.002
2	+ .041	+ .029	+ .038	+ .027	+ .027	+ .032	+ .023	+ .026	+ .020	+ .024	+ .019	+ .019	+ .017	+ .014	+ .015
3	+ .030	+ .018	+ .028	+ .017	+ .017	+ .022	+ .013	+ .018	+ .012	+ .015	+ .010	+ .011	+ .009	+ .007	+ .008
4	+ .017	+ .005	+ .015	+ .004	+ .004	+ .011	+ .002	+ .008	+ .002	+ .006	+ .001	+ .003	+ .001	.000	+ .001
5	+ .003	− .009	+ .001	− .010	− .010	− .002	− .011	− .005	− .011	− .007	− .012	− .009	− .011	− .012	− .011
6	+ .027	+ .015	+ .027	+ .016	+ .017	+ .026	+ .017	+ .024	+ .018	+ .024	+ .019	+ .022	+ .020	+ .021	+ .022
7	+ .003	− .009	+ .002	− .009	− .008	.000	− .009	− .001	− .007	− .002	− .007	− .004	− .006	− .005	− .004
8	+ .043	+ .031	+ .041	+ .030	+ .030	+ .037	+ .028	+ .035	+ .029	+ .033	+ .028	+ .031	+ .029	+ .029	+ .030
9	− .013	− .025	− .012	− .025	− .022	− .012	− .021	− .012	− .018	− .012	− .017	− .013	− .015	− .015	− .014
10	+ .002	− .010	+ .002	− .009	− .008	+ .001	− .008	.000	− .006	− .001	− .006	+ .001	− .001	− .003	− .002
11	.000	− .012	.000	− .011	− .010	− .001	− .010	− .002	− .008	− .002	− .007	− .004	− .006	− .005	− .004
12	− .018	− .030	− .018	− .029	− .028	− .018	− .027	− .019	− .025	− .019	− .024	− .020	− .022	− .021	− .020
13	+ .036	+ .024	+ .037	+ .026	+ .027	+ .038	+ .029	+ .038	+ .032	+ .038	+ .033	+ .037	+ .035	+ .036	+ .037
14	+ .037	+ .025	+ .038	+ .026	+ .028	+ .036	+ .027	+ .034	+ .028	+ .033	+ .028	+ .031	+ .029	+ .029	+ .030
15	− .009	− .021	− .010	− .021	− .021	− .013	− .022	− .015	− .021	− .016	− .021	− .019	− .021	− .022	− .021
16	+ .027	+ .015	+ .027	+ .016	+ .017	+ .026	+ .017	+ .023	+ .017	+ .021	+ .016	+ .019	+ .017	+ .016	+ .017
17	− .003	− .015	− .005	− .016	− .016	− .009	− .018	− .013	− .019	− .015	− .020	− .018	− .020	− .021	− .020
18	+ .008	− .004	+ .003	− .008	− .008	− .005	− .014	− .013	− .019	− .017	− .022	− .023	− .025	− .028	− .027
19	− .001	− .013	− .001	− .012	− .011	− .003	− .012	− .005	− .011	− .007	− .012	− .010	− .012	− .013	− .012
20	+ .038	+ .026	+ .033	+ .022	+ .022	+ .024	+ .015	+ .018	+ .012	+ .015	+ .010	+ .010	+ .008	+ .005	+ .006
21	+ .049	+ .037	+ .048	+ .037	+ .038	+ .047	+ .038	+ .045	+ .039	+ .044	+ .039	+ .042	+ .040	+ .039	+ .040
22	+ .051	+ .039	+ .050	+ .039	+ .040	+ .049	+ .040	+ .047	+ .041	+ .045	+ .040	+ .043	+ .041	+ .040	+ .041
23	+ .002	− .010	+ .002	− .009	− .008	.000	− .009	− .003	− .009	− .004	− .009	− .006	− .008	− .009	− .008
24	+ .036	+ .024	+ .035	+ .024	+ .025	+ .033	+ .024	+ .030	+ .024	+ .028	+ .023	+ .025	+ .023	+ .022	+ .023
25	− .005	− .017	− .006	− .017	− .016	− .008	− .017	− .011	− .017	− .013	− .018	− .015	− .017	− .019	− .018
26	+ .039	+ .027	+ .038	+ .027	+ .027	+ .035	+ .026	+ .032	+ .026	+ .030	+ .025	+ .028	+ .026	+ .024	+ .025
27	+ .037	+ .025	+ .036	+ .025	+ .025	+ .034	+ .025	+ .030	+ .024	+ .029	+ .024	+ .026	+ .024	+ .022	+ .023
28	− .001	− .013	− .004	− .015	− .015	− .007	− .016	− .012	− .018	− .014	− .019	− .018	− .020	− .022	− .021
29	+ .021	+ .009	+ .019	+ .008	+ .008	+ .016	+ .007	+ .013	+ .007	+ .011	+ .006	+ .008	+ .006	+ .004	+ .005
30	+ .021	+ .009	+ .020	+ .009	+ .009	+ .016	+ .007	+ .013	+ .007	+ .011	+ .006	+ .008	+ .006	+ .004	+ .005
31	+ .005	− .007	+ .004	− .007	− .007	+ .002	− .007	.000	− .006	− .002	− .007	− .003	− .005	− .006	− .005
32	− .009	− .021	− .010	− .021	− .020	− .012	− .021	− .015	− .021	− .016	− .021	− .019	− .021	− .022	− .021
33	+ .007	− .005	+ .007	− .004	− .003	+ .007	− .002	+ .005	− .001	+ .004	− .001	+ .003	+ .001	+ .002	+ .003
34	− .010	− .022	− .009	− .020	− .019	− .010	− .019	− .011	− .017	− .012	− .017	− .014	− .016	− .016	− .015
35	.000	− .012	.000	− .011	− .010	.000	− .009	− .001	− .007	− .001	− .006	− .002	− .004	− .003	− .002
36	+ .001	− .011	+ .001	− .010	− .009	+ .002	− .007	+ .001	− .005	.000	− .005	− .001	− .003	− .003	− .002
37	+ .005	− .007	+ .005	− .006	− .005	+ .004	− .005	+ .003	− .003	+ .002	− .003	+ .001	− .001	− .001	.000
38	+ .002	− .010	+ .003	− .008	− .007	+ .003	− .006	+ .003	− .003	+ .003	− .002	+ .002	.000	+ .002	+ .003
39	− .009	− .021	− .008	− .019	− .018	− .007	− .016	− .008	− .014	− .008	− .013	− .008	− .010	− .009	− .008
40	+ .021	+ .009	+ .022	+ .011	+ .012	+ .022	+ .013	+ .022	+ .016	+ .022	+ .017	+ .022	+ .020	+ .021	+ .022
41	+ .003	− .009	+ .002	− .009	− .009	− .001	− .010	− .004	− .010	− .005	− .010	− .007	− .009	− .010	− .009
42	+ .018	+ .006	+ .014	+ .003	+ .003	+ .008	− .001	+ .001	− .005	− .002	− .007	− .008	− .010	− .016	− .015
43	+ .069	+ .057	+ .057	+ .046	+ .045	+ .041	+ .032	+ .029	+ .023	+ .024	+ .019	+ .015	+ .013	+ .005	+ .006
44	− .008	− .020	− .006	− .017	− .016	− .005	− .014	− .008	− .014	− .010	− .015	− .014	− .016	− .019	− .018
45	+ .051	+ .039	+ .048	+ .037	+ .037	+ .039	+ .030	+ .028	+ .022	+ .023	+ .018	+ .014	+ .012	+ .003	+ .004
46	+ .031	+ .019	+ .034	+ .023	+ .024	+ .035	+ .026	+ .032	+ .026	+ .030	+ .025	+ .027	+ .025	+ .021	+ .022
47	− .020	− .032	− .016	− .027	− .026	− .013	− .022	− .013	− .019	− .013	− .018	− .015	− .017	− .018	− .017
48	+ .038	+ .026	+ .032	+ .021	+ .021	+ .022	+ .013	+ .012	+ .006	+ .008	+ .003	+ .001	− .001	− .006	− .005
49	+ .021	+ .009	+ .021	+ .010	+ .011	+ .021	+ .012	+ .018	+ .012	+ .017	+ .012	+ .014	+ .012	+ .009	+ .010
50	+ .035	+ .023	+ .029	+ .018	+ .017	+ .017	+ .008	+ .006	.000	+ .001	− .004	− .007	− .009	− .016	− .015
51	+ .055	+ .043	+ .049	+ .038	+ .038	+ .039	+ .030	+ .029	+ .023	+ .024	+ .019	+ .016	+ .014	+ .008	+ .009
52	+ .031	+ .019	+ .026	+ .015	+ .015	+ .017	+ .008	+ .007	+ .001	+ .002	− .003	− .005	− .007	− .014	− .013
53	− .093	− .105	− .090	− .101	− .100	− .086	− .095	− .085	− .091	− .084	− .089	− .084	− .086	− .085	− .084
54	+ .006	− .006	+ .001	− .010	− .010	− .008	− .017	− .015	− .021	− .018	− .023	− .023	− .025	− .028	− .027
55	+ .033	+ .021	+ .025	+ .014	+ .013	+ .013	+ .004	+ .005	− .001	+ .001	− .004	− .005	− .007	− .010	− .009
56	− .094	− .106	− .090	− .101	− .100	− .086	− .095	− .085	− .091	− .085	− .090	− .085	− .087	− .085	− .084
57	+ .054	+ .042	+ .052	+ .041	+ .041	+ .049	+ .040	+ .046	+ .040	+ .044	+ .039	+ .042	+ .040	+ .040	+ .041
58	+ .035	+ .023	+ .034	+ .023	+ .023	+ .032	+ .023	+ .031	+ .025	+ .030	+ .025	+ .029	+ .027	+ .027	+ .028
59	+ .024	+ .012	+ .025	+ .014	+ .015	+ .026	+ .017	+ .027	+ .021	+ .027	+ .022	+ .027	+ .025	+ .027	+ .028
60	+ .007	− .005	+ .007	− .004	− .003	+ .008	− .001	+ .009	+ .003	+ .009	+ .004	+ .009	+ .007	+ .009	+ .010

Anomalies for various depths of compensation—Continued.

Number of station	Depth, 42.6 km.		Depth, 56.9 km.		Depth, 60.0 km.	Depth, 85.3 km.		Depth, 113.7 km.		Depth, 127.9 km.		Depth, 156.25 km.		Depth, 184.6 km.	
	$g-g_0$	$g-(g_0+12)$	$g-g_0$	$g-(g_0+11)$	$g-(g_0+10)$	$g-g_0$	$g-(g_0+9)$	$g-g_0$	$-(g_0+6)$	$g-g_0$	$g-(g_0+5)$	$g-g_0$	$g-(g_0+2)$	$g-g_0$	$g-(g_0-1)$
61	−0.015	−0.027	−0.017	−0.028	−0.028	−0.019	−0.028	−0.021	−0.027	−[illegible]	−0.027	−0.025	−0.027	−0.027	−0.026
62	+ .049	+ .037	+ .046	+ .035	+ .035	+ .042	+ .033	+ .039	+ .033	+ .037	+ .032	+ .034	+ .032	+ .031	+ .032
63	+ .021	+ .009	+ .020	+ .009	+ .010	+ .018	+ .009	+ .015	+ .009	+ .014	+ .009	+ .011	+ .009	+ .007	+ .008
64	− .024	− .036	− .029	− .040	− .040	− .036	− .045	− .042	− .048	− .044	− .049	− .048	− .050	− .053	− .052
65	+ .015	+ .003	+ .016	+ .005	+ .006	+ .017	+ .008	+ .017	+ .011	+ .017	+ .012	+ .016	+ .014	+ .015	+ .016
66	− .037	− .049	− .038	− .049	− .049	− .040	− .049	− .042	− .048	− .044	− .049	− .047	− .049	− .051	− .050
67	+ .016	+ .004	+ .010	− .001	− .001	+ .003	− .006	− .005	− .011	− .009	− .014	− .016	− .018	− .024	− .023
68	+ .027	+ .015	+ .023	+ .012	+ .012	+ .016	+ .007	+ .009	+ .003	+ .006	+ .001	+ .001	− .001	− .007	− .006
69	+ .012	.000	+ .010	− .001	− .001	+ .004	− .005	− .002	− .008	− .005	− .010	− .010	− .012	− .018	− .017
70	+ .015	+ .003	+ .010	− .001	− .001	+ .003	− .006	− .005	− .011	− .009	− .014	− .015	− .017	− .023	− .022
71	+ .032	+ .020	+ .027	+ .016	+ .016	+ .019	+ .010	+ .011	+ .005	+ .007	+ .002	+ .001	− .001	− .007	− .006
72	+ .044	+ .032	+ .044	+ .033	+ .034	+ .042	+ .033	+ .040	+ .034	+ .039	+ .034	+ .037	+ .035	+ .035	+ .036
73	+ .014	+ .002	+ .014	+ .003	+ .004	+ .013	+ .004	+ .013	+ .007	+ .012	+ .007	+ .011	+ .009	+ .010	+ .011
74	+ .066	+ .054	+ .067	+ .056	+ .057	+ .067	+ .058	+ .067	+ .061	+ .067	+ .062	+ .067	+ .065	+ .066	+ .067
75	+ .079	+ .067	+ .073	+ .062	+ .062	+ .066	+ .057	+ .060	+ .054	+ .057	+ .052	+ .053	+ .051	+ .049	+ .050
76	+ .010	− .002	+ .010	− .001	.000	+ .011	+ .002	+ .010	+ .004	+ .010	+ .005	+ .010	+ .008	+ .009	+ .010
77	+ .032	+ .020	+ .034	+ .023	+ .024	+ .035	+ .026	+ .037	+ .031	+ .037	+ .032	+ .038	+ .036	+ [illegible]	+ .038
78	+ .008	− .004	+ .010	− .001	.000	+ .011	+ .002	+ .010	+ .004	+ .010	+ .005	+ .008	+ .006	+ .006	+ .007
79	+ .009	− .003	+ .012	+ .001	+ .002	+ .015	+ .006	+ .016	+ .010	+ .016	+ .011	+ .016	+ .014	+ .014	+ .015
80	+ .002	− .010	+ .001	− .010	− .010	− .002	− .011	− .005	− .011	− .005	− .010	− .008	− .010	− .010	− .009
81	+ .028	+ .016	+ .021	+ .010	+ .009	+ .009	.000	− .002	− .008	− .007	− .012	− .016	− .018	− .025	− .024
82	+ .034	+ .022	+ .031	+ .020	+ .020	+ .027	+ .018	+ .021	+ .015	+ .019	+ .014	+ .014	+ .012	+ .007	+ .008
83	+ .004	− .008	+ .005	− .006	− .005	+ .004	− .005	+ .002	− .004	+ .002	− .003	.000	− .002	− .002	− .001
84	+ .049	+ .037	+ .049	+ .038	+ .039	+ .047	+ .038	+ .045	+ .039	+ .044	+ .039	+ .042	+ .040	+ .039	+ .040
85	+ .007	− .005	+ .008	− .003	− .002	+ .009	.000	+ .009	+ .003	+ .008	+ .003	+ .007	+ .005	+ .005	+ .006
86	+ .032	+ .020	+ .027	+ .016	+ .016	+ .020	+ .011	+ .014	+ .008	+ .012	+ .007	+ .007	+ .005	+ .003	+ .004
87	+ .032	+ .020	+ .031	+ .020	+ .021	+ .030	+ .021	+ .029	+ .023	+ .028	+ .023	+ .026	+ .024	+ .024	+ .025
88	− .004	− .016	− .003	− .014	− .013	− .002	− .011	− .002	− .008	− .003	− .008	− .003	− .005	− .004	− .003
89	− .008	− .020	− .009	− .020	− .019	− .010	− .019	− .012	− .018	− .012	− .017	− .014	− .016	− .015	− .014
90	− .025	− .037	− .028	− .039	− .039	− .034	− .043	− .040	− .046	− .043	− .048	− .047	− .049	− .052	− .051
91	+ .049	+ .037	+ .049	+ .038	+ .038	+ .047	+ .038	+ .044	+ .038	+ .042	+ .037	+ .039	+ .037	+ .036	+ .037
92	+ .028	+ .016	+ .026	+ .015	+ .015	+ .022	+ .013	+ .018	+ .012	+ .016	+ .011	+ .012	+ .010	+ .009	+ .010
93	− .029	− .041	− .031	− .042	− .042	− .034	− .043	− .036	− .042	− .037	− .042	− .040	− .042	− .043	− .042
94	− .007	− .019	− .007	− .018	− .017	− .008	− .017	− .009	− .015	− .010	− .015	− .011	− .013	− .013	− .012
95	+ .007	− .005	+ .008	− .003	− .002	+ .009	.000	+ .009	+ .003	+ .009	+ .004	+ .009	+ .007	+ .008	+ .009
96	− .040	− .052	− .041	− .052	− .051	− .042	− .051	− .044	− .050	− .044	− .049	− .046	− .048	− .047	− .046
97	− .003	− .015	− .003	− .014	− .013	− .003	− .012	− .004	− .010	− .004	− .009	− .005	− .007	− .006	− .005
98	+ .049	+ .037	+ .045	+ .034	+ .034	+ .037	+ .028	+ .029	+ .023	+ .026	+ .021	+ .020	+ .018	+ .014	+ .015
99	.000	− .012	− .002	− .013	− .013	− .005	− .014	− .008	− .014	− .010	− .015	− .013	− .015	− .018	− .017
100	− .007	− .019	− .006	− .017	− .016	− .007	− .016	− .009	− .015	− .010	− .015	− .012	− .014	− .015	− .014
101	+ .058	+ .046	+ .056	+ .045	+ .045	+ .052	+ .043	+ .048	+ .042	+ .046	+ .041	+ .043	+ .041	+ .039	+ .040
102	+ .040	+ .028	+ .033	+ .022	+ .021	+ .021	+ .012	+ .012	+ .006	+ .008	+ .003	+ .001	− .001	− .005	− .004
103	+ .006	− .006	− .001	− .012	− .012	− .012	− .021	− .021	− .027	− .024	− .029	− .031	− .033	− .037	− .036
104	− .015	− .027	− .014	− .025	− .024	− .015	− .024	− .016	− .022	− .017	− .022	− .019	− .021	− .022	− .021
105	− .005	− .017	− .006	− .017	− .017	− .009	− .018	− .013	− .019	− .015	− .020	− .018	− .020	− .022	− .021
106	− .004	− .016	− .004	− .015	− .014	− .004	− .013	− .005	− .011	− .006	− .011	− .007	− .009	− .009	− .008
107	+ .039	+ .027	+ .037	+ .026	+ .026	+ .034	+ .025	+ .032	+ .026	+ .031	+ .026	+ .029	+ .027	+ .027	+ .028
108	+ .001	− .011	+ .002	− .009	− .008	+ .002	− .007	+ .002	− .004	+ .002	− .003	+ .002	.000	+ .001	+ .002
109	+ .044	+ .032	+ .045	+ .034	+ .035	+ .043	+ .034	+ .040	+ .034	+ .038	+ .033	+ .034	+ .032	+ .030	+ .031
110	+ .008	− .004	+ .005	− .006	− .006	− .001	− .010	− .007	− .013	− .009	− .014	− .014	− .016	− .020	− .019
111	− .004	− .016	− .008	− .019	− .019	− .014	− .023	− .020	− .026	− .022	− .027	− .026	− .028	− .030	− .029
112	+ .037	+ .025	+ .039	+ .028	+ .029	+ .041	+ .032	+ .041	+ .035	+ .040	+ .035	+ .040	+ .038	+ .038	+ .039
113	− .021	− .033	− .020	− .031	− .030	− .019	− .028	− .019	− .025	− .020	− .025	− .021	− .023	− .022	− .021
114	+ .023	+ .011	+ .012	+ .001	.000	− [illegible]	− .015	− .020	− .026	− .027	− .032	− .037	− .039	− .048	− .047
115	+ .003	− .009	+ .004	− .007	− .006	+ .002	− .007	− .001	− .007	− .003	− .008	− .007	− .009	− .013	− .012
116	+ .014	+ .002	+ .008	− .003	− .003	− .003	− .012	− .013	− .019	− .018	− .023	− .026	− .028	− .034	− .033
117	+ .043	+ .031	+ .045	+ .034	+ .035	+ .046	+ .037	+ .044	+ .038	+ .043	+ .038	+ .041	+ .039	+ .038	+ .039
118	+ .018	+ .006	+ .019	+ .008	+ .009	+ .021	+ .012	+ .022	+ .016	+ .022	+ .017	+ .023	+ .021	+ .023	+ .024
119	+ .023	+ .011	+ .023	+ .012	+ .013	+ .024	+ .015	+ .023	+ .017	+ .023	+ .018	+ .023	+ .021	+ .021	+ .022
120	+ .002	− .010	+ .002	− .009	− .008	.000	− .009	.000	− .006	− .001	− .006	− .001	− .003	− .002	− .001
121	+ .012	.000	+ .012	+ .001	+ .002	+ .011	+ .002	+ .010	+ .004	+ [illegible]	+ .004	+ .008	+ .006	+ .007	+ .008
122	+ .022	+ .010	+ .022	+ .011	+ .012	+ .020	+ .011	+ .019	+ .013	+ .018	+ .013	+ .016	+ .014	+ .015	+ .016
123	− .031	− .043	− .031	− .042	− .041	− .032	− .041	− .035	− .041	− .037	− .042	− .040	− .042	− .043	− .042
124	− .014	− .026	− .016	− .027	− .027	− .020	− .029	− .025	− .031	− .027	− .032	− .031	− .033	− .035	− .034
125	− .004	− .016	− .007	− .018	− .018	− .011	− .020	− .015	− .021	− .018	− .023	− .021	− .023	− .025	− .024
126	− .002	− .014	− .005	− .016	− .016	− .010	− .019	− .014	− .020	− .016	− .021	− .020	− .022	− .024	− .023
127	+ .008	− .004	+ .004	− .007	− .007	− .001	− .010	− .006	− .012	− .009	− .014	− .013	− .015	− .018	− .017
128	.000	− .012	− .002	− .013	− .013	− .004	− .013	− .007	− .013	− .008	− .013	− .010	− .012	− .013	− .012
129	+ .003	− .009	.000	− .011	− .011	− .005	− .014	− .010	− .016	− .012	− .017	− .016	− .018	− .020	− .019
130	− .026	− .038	− .027	− .038	− .037	− .028	− .037	− .031	− .037	− .032	− .037	− .035	− .037	− .039	− .038
131	− .009	− .021	− .010	− .021	− .021	− .013	− .022	− .016	− .022	− .018	− .023	− .022	− .024	− .026	− .025
132	− .014	− .026	− .014	− .025	− .024	− .015	− .024	− .017	− .023	− .018	− .023	− .020	− .022	− .021	− .020
133	− .011	− .023	− .013	− .024	− .024	− .018	− .027	− .022	− .028	− .024	− .029	− .028	− .030	− .032	− .031
134	− .016	− .028	− .017	− .028	− .027	− .018	− .027	− .019	− .025	− .020	− .025	− .021	− .023	− .023	− .022
135	− .012	− .024	− .013	− .024	− .023	− .014	− .023	− .016	− .022	− .017	− .022	− .019	− .021	− .022	− .021
136	− .001	− .013	− .001	− .012	− .011	− .002	− .011	− .004	− .010	− [illegible]	− .010	− .007	− .009	− .009	− .008
137	+ .013	+ .001	+ .012	+ .001	+ .002	+ .010	+ .001	+ .009	+ .003	+ .008	+ .003	+ .006	+ .004	+ .005	+ .006
138	− .007	− .019	− .007	− .018	− .017	− .007	− .016	− .008	− .014	− .008	− .013	− .009	− .011	− .009	− .008
139	+ .024	+ .012	+ .023	+ .012	+ .012	+ .021	+ .012	+ .019	+ .013	+ .019	+ .014	+ .017	+ .015	+ .015	+ .016
140	+ .027	+ .015	+ .026	+ .015	+ .016	+ .025	+ .016	+ .024	+ .018	+ .024	+ .019	+ .022	+ .020	+ .021	+ .022

Anomalies for various depths of compensation—Continued.

Number of station	Depth, 42.6 km.		Depth, 56.9 km.		Depth, 60.0 km.	Depth, 85.3 km.		Depth, 113.7 km.		Depth, 127.9 km.		Depth, 156.25 km.		Depth, 184.6 km.	
	$g-g_o$	$g-(g_o+12)$	$g-g_o$	$g-(g_o+11)$	$g-(g_o+10)$	$g-g_o$	$g-(g_o+9)$	$g-g_o$	$g-(g_o+6)$	$g-g_o$	$g-(g_o+5)$	$g-g_o$	$g-(g_o+2)$	$g-g_o$	$g-(g_o-1)$
141	−0.009	−0.021	−0.008	−0.019	−0.018	−0.007	−0.016	−0.008	−0.014	−0.008	−0.013	−0.009	−0.011	−0.010	−0.009
142	+ .019	+ .007	+ .019	+ .008	+ .009	+ .020	+ .011	+ .019	+ .013	+ .019	+ .014	+ .018	+ .016	+ .018	+ .019
143	+ .028	+ .016	+ .028	+ .017	+ .018	+ .027	+ .018	+ .026	+ .020	+ .025	+ .020	+ .024	+ .022	+ .022	+ .023
144	+ .006	− .006	+ .005	− .006	− .005	+ .003	− .006	+ .002	− .004	+ .001	− .004	− .001	− .003	− .002	− .001
145	+ .028	+ .016	+ .027	+ .016	+ .016	+ .024	+ .015	+ .022	+ .016	+ .020	+ .015	+ .018	+ .016	+ .016	+ .017
146	+ .017	+ .005	+ .016	+ .005	+ .005	+ .014	+ .005	+ .011	+ .005	+ .010	+ .005	+ .007	+ .005	+ .004	+ .005
147	+ .029	+ .017	+ .027	+ .016	+ .016	+ .024	+ .015	+ .021	+ .015	+ .019	+ .014	+ .016	+ .014	+ .013	+ .014
148	+ .001	− .011	− .001	− .012	− .012	− .006	− .015	− .010	− .016	− .012	− .017	− .016	− .018	− .020	− .019
149	− .010	− .022	− .013	− .024	− .024	− .018	− .027	− .023	− .029	− .026	− .031	− .030	− .032	− .035	− .034
150	+ .017	+ .005	+ .016	+ .005	+ .005	+ .013	+ .004	+ .010	+ .004	+ .009	+ .004	+ .006	+ .004	+ .002	+ .003
151	+ .042	+ .030	+ .040	+ .029	+ .029	+ .037	+ .028	+ .033	+ .027	+ .032	+ .027	+ .028	+ .026	+ .024	+ .025
152	+ .025	+ .013	+ .020	+ .009	+ .009	+ .011	+ .002	+ .003	− .003	.000	− .005	− .006	− .008	− .012	− .011
153	− .007	− .019	− .009	− .020	− .020	− .012	− .021	− .015	− .021	− .016	− .021	− .019	− .021	− .022	− .021
154	− .021	− .033	− .023	− .034	− .034	− .027	− .036	− .030	− .036	− .032	− .037	− .036	− .038	− .039	− .038
155	− .007	− .019	− .008	− .019	− .019	− .010	− .019	− .013	− .019	− .014	− .019	− .017	− .019	− .020	− .019
156	+ .007	− .005	+ .004	− .007	− .007	− .002	− .011	− .007	− .013	− .009	− .014	− .014	− .016	− .019	− .018
157	− .012	− .024	− .015	− .026	− .026	− .023	− .032	− .028	− .034	− .031	− .036	− .036	− .038	− .041	− .040
158	+ .004	− .008	+ .001	− .010	− .010	− .004	− .013	− .009	− .015	− .011	− .016	− .016	− .018	− .020	− .019
159	+ .021	+ .009	+ .018	+ .007	+ .007	+ .012	+ .003	+ .007	+ .001	+ .005	.000	.000	− .002	− .004	− .003
160	+ .006	− .006	+ .003	− .008	− .008	− .001	− .010	− .006	− .012	− .008	− .013	− .012	− .014	− .016	− .015
161	− .003	− .015	− .005	− .016	− .016	− .009	− .018	− .013	− .019	− .015	− .020	− .019	− .021	− .022	− .021
162	+ .033	+ .021	+ .032	+ .021	+ .021	+ .030	+ .021	+ .027	+ .021	+ .026	+ .021	+ .024	+ .022	+ .021	+ .022
163	+ .017	+ .005	+ .016	+ .005	+ .005	+ .013	+ .004	+ .010	+ .004	+ .009	+ .004	+ .006	+ .004	+ .003	+ .004
164	+ .003	− .009	+ .001	− .010	− .010	− .002	− .011	− .006	− .012	− .007	− .012	− .010	− .012	− .012	− .011
165	− .007	− .019	− .009	− .020	− .020	− .013	− .022	− .017	− .023	− .018	− .023	− .021	− .023	− .024	− .023
166	− .009	− .021	− .010	− .021	− .021	− .013	− .022	− .015	− .021	− .017	− .022	− .019	− .021	− .022	− .021
167	− .002	− .014	− .002	− .013	− .012	− .003	− .012	− .004	− .010	− .004	− .009	− .005	− .007	− .006	− .005
168	+ .022	+ .010	+ .022	+ .011	+ .012	+ .021	+ .012	+ .021	+ .015	+ .020	+ .015	+ .020	+ .018	+ .019	+ .020
169	+ .023	+ .011	+ .023	+ .012	+ .013	+ .022	+ .013	+ .021	+ .015	+ .020	+ .015	+ .019	+ .017	+ .018	+ .019
170	+ .017	+ .005	+ .017	+ .006	+ .007	+ .015	+ .006	+ .014	+ .008	+ .013	+ .008	+ .012	+ .010	+ .010	+ .011
171	− .014	− .026	− .015	− .026	− .026	− .018	− .027	− .021	− .027	− .022	− .027	− .025	− .027	− .027	− .026
172	− .015	− .027	− .016	− .027	− .027	− .022	− .031	− .026	− .032	− .029	− .034	− .034	− .036	− .038	− .037
173	+ .004	− .008	+ .002	− .009	− .009	− .001	− .010	− .003	− .009	− .005	− .010	− .007	− .009	− .009	− .008
174	− .017	− .029	− .019	− .030	− .030	− .022	− .031	− .025	− .031	− .026	− .031	− .028	− .030	− .031	− .030
175	− .007	− .019	− .008	− .019	− .019	− .012	− .021	− .016	− .022	− .018	− .023	− .023	− .025	− .027	− .026
176	− .010	− .022	− .011	− .022	− .022	− .013	− .022	− .016	− .022	− .017	− .022	− .019	− .021	− .022	− .021
177	+ .010	− .002	+ .010	− .001	.000	+ .010	+ .001	+ .009	+ .003	+ .008	+ .003	+ .008	+ .006	+ .007	+ .008
178	+ .012	.000	+ .012	+ .001	+ .002	+ .010	+ .001	+ .009	+ .003	+ .009	+ .004	+ .008	+ .006	+ .006	+ .007
179	− .018	− .030	− .017	− .028	− .027	− .017	− .026	− .017	− .023	− .017	− .022	− .018	− .020	− .019	− .018
180	− .031	− .043	− .032	− .043	− .042	− .033	− .042	− .034	− .040	− .035	− .040	− .036	− .038	− .038	− .037
181	+ .025	+ .013	+ .025	+ .014	+ .015	+ .025	+ .016	+ .023	+ .017	+ .023	+ .018	+ .022	+ .020	+ .021	+ .022
182	− .040	− .052	− .041	− .052	− .051	− .041	− .050	− .042	− .048	− .042	− .047	− .044	− .046	− .045	− .044
183	− .038	− .050	− .038	− .049	− .048	− .039	− .048	− .041	− .047	− .041	− .046	− .042	− .044	− .044	− .043
184	− .018	− .030	− .018	− .029	− .028	− .019	− .028	− .019	− .025	− .019	− .024	− .020	− .022	− .021	− .020
185	+ .022	+ .010	+ .022	+ .011	+ .012	+ .021	+ .012	+ .020	+ .014	+ .020	+ .015	+ .019	+ .017	+ .018	+ .019
186	+ .019	+ .007	+ .019	+ .008	+ .009	+ .020	+ .011	+ .020	+ .014	+ .020	+ .015	+ .020	+ .018	+ .020	+ .021
187	+ .024	+ .012	+ .024	+ .013	+ .014	+ .023	+ .014	+ .023	+ .017	+ .023	+ .018	+ .022	+ .020	+ .021	+ .022
188	+ .046	+ .034	+ .046	+ .035	+ .036	+ .045	+ .036	+ .043	+ .037	+ .042	+ .037	+ .041	+ .039	+ .038	+ .039
189	+ .039	+ .027	+ .040	+ .029	+ .030	+ .040	+ .031	+ .040	+ .034	+ .041	+ .036	+ .040	+ .038	+ .039	+ .040
190	+ .025	+ .013	+ .025	+ .014	+ .015	+ .025	+ .016	+ .025	+ .019	+ .025	+ .020	+ .025	+ .023	+ .024	+ .025
191	+ .017	+ .005	+ .018	+ .007	+ .008	+ .019	+ .010	+ .019	+ .013	+ .020	+ .015	+ .019	+ .017	+ .019	+ .020
192	+ .024	+ .012	+ .025	+ .014	+ .015	+ .026	+ .017	+ .027	+ .021	+ .027	+ .022	+ .027	+ .025	+ .027	+ .028
193	+ .037	+ .025	+ .038	+ .027	+ .028	+ .039	+ .030	+ .038	+ .032	+ .038	+ .033	+ .038	+ .036	+ .036	+ .037
194	+ .015	+ .003	+ .017	+ .006	+ .007	+ .019	+ .010	+ .019	+ .013	+ .019	+ .014	+ .019	+ .017	+ .017	+ .018
195	+ .036	+ .024	+ .035	+ .024	+ .024	+ .032	+ .023	+ .027	+ .021	+ .024	+ .019	+ .019	+ .017	+ .012	+ .013
196	+ .045	+ .033	+ .045	+ .034	+ .035	+ .044	+ .035	+ .044	+ .038	+ .043	+ .038	+ .042	+ .040	+ .041	+ .042
197	+ .015	+ .003	+ .015	+ .004	+ .005	+ .014	+ .005	+ .014	+ .008	+ .014	+ .009	+ .015	+ .011	+ .012	+ .013
198	+ .063	+ .051	+ .064	+ .053	+ .054	+ .063	+ .054	+ .062	+ .056	+ .061	+ .056	+ .059	+ .057	+ .056	+ .057
199	+ .025	+ .013	+ .025	+ .014	+ .015	+ .025	+ .016	+ .025	+ .019	+ .025	+ .020	+ .025	+ .023	+ .024	+ .025
200	+ .015	+ .003	+ .015	+ .004	+ .005	+ .015	+ .006	+ .014	+ .008	+ .014	+ .009	+ .014	+ .012	+ .013	+ .014
201	+ .035	+ .023	+ .036	+ .025	+ .026	+ .038	+ .029	+ .038	+ .032	+ .038	+ .033	+ .037	+ .035	+ .037	+ .038
202	+ .035	+ .023	+ .034	+ .023	+ .024	+ .032	+ .023	+ .029	+ .023	+ .028	+ .023	+ .025	+ .023	+ .021	+ .022
203	+ .059	+ .047	+ .059	+ .048	+ .049	+ .059	+ .050	+ .058	+ .052	+ .058	+ .053	+ .057	+ .055	+ .056	+ .057
204	− .015	− .027	− .015	− .026	− .025	− .017	− .026	− .018	− .024	− .018	− .023	− .020	− .022	− .021	− .020
205	+ .010	− .002	+ .010	− .001	.000	+ .010	+ .001	+ .010	+ .004	+ .009	+ .004	+ .009	+ .007	+ .008	+ .009
206	+ .030	+ .018	+ .030	+ .019	+ .020	+ .028	+ .019	+ .026	+ .020	+ .025	+ .020	+ .024	+ .022	+ .022	+ .023
207	− .015	− .027	− .016	− .027	− .026	− .018	− .027	− .021	− .027	− .022	− .027	− .024	− .026	− .027	− .026
208	+ .002	− .010	+ .002	− .009	− .008	+ .001	− .008	.000	− .006	.000	− .005	− .002	− .004	− .003	− .002
209	+ .048	+ .036	+ .047	+ .036	+ .036	+ .044	+ .035	+ .042	+ .036	+ .040	+ .035	+ .038	+ .036	+ .035	+ .036
210	− .015	− .027	− .016	− .027	− .027	− .019	− .028	− .021	− .027	− .023	− .028	− .026	− .028	− .029	− .028
211	− .010	− .022	− .011	− .022	− .022	− .013	− .022	− .015	− .021	− .017	− .022	− .019	− .021	− .022	− .021
212	+ .060	+ .048	+ .059	+ .048	+ .048	+ .056	+ .047	+ .054	+ .048	+ .052	+ .047	+ .050	+ .048	+ .047	+ .048
213	+ .027	+ .015	+ .026	+ .015	+ .016	+ .024	+ .015	+ .021	+ .015	+ .019	+ .014	+ .017	+ .015	+ .014	+ .015
214	+ .049	+ .037	+ .048	+ .037	+ .037	+ .046	+ .037	+ .044	+ .038	+ .043	+ .038	+ .040	+ .038	+ .037	+ .038
215	− .010	− .022	− .012	− .023	− .023	− .016	− .025	− .021	− .027	− .024	− .029	− .027	− .029	− .031	− .030
216	+ .018	+ .006	+ .017	+ .006	+ .007	+ .015	+ .006	+ .013	+ .007	+ .011	+ .006	+ .009	+ .007	+ .006	+ .007
217	+ .007	− .005	+ .005	− .006	− .006	+ .002	− .007	− .002	− .008	− .003	− .008	− .006	− .008	− .010	− .009
218	....	....	+ .041	+ .030	+ .031	+ .024	+ .015	+ .023	+ .017	....	....	....	....	....	....
219	− .033	− .045	− .035	− .046	− .046	− .037	− .046	− .041	− .047	− .042	− .047	− .045	− .047	− .049	− .048

SUMMARY OF MEAN ANOMALIES FOR VARIOUS DEPTHS OF COMPENSATION AND THE VARIOUS VALUES OF EQUATORIAL GRAVITY.

Depths of compensation	42.6 km.		56.9 km.		60.0 km.		85.3 km.	
Equatorial value of gravity	978.030	978.042	978.030	978.041	978.030	978.040	978.030	978.039
Mean anomalies with regard to sign, using groups	+0.012	0.000	+0.011	0.000	+0.010	0.000	+0.009	0.000
Mean anomalies without regard to sign, using groups	.019	.016	.018	.016	....	....	.018	.017
Mean anomalies with regard to sign, all stations	+ .012	.000	+ .011	.000	....	.000	+ .008	− .001
Mean anomalies without regard to sign, all stations	.022	.020	.021	.020	....	.020	.020	.020
Mean anomalies with regard to sign, all stations (Seattle stations omitted)	+ .013	+ .001	+ .012	+ .001	....	+ .001	+ .009	.000
Mean anomalies without regard to sign, all stations (Seattle stations omitted)	.021	.019	.020	.019	....	.019	.020	.019

Depths of compensation	113.7 km.		127.9 km.		156.25 km.		184.6 km.	
Equatorial value of gravity	978.030	978.036	978.030	978.035	978.030	978.032	978.030	978.029
Mean anomalies with regard to sign, using groups	+0.006	0.000	+0.005	0.000	+0.002	0.000	−0.001	0.000
Mean anomalies without regard to sign, using groups	.018	.017	.018	.017	.018	.018	.019	.019
Mean anomalies with regard to sign, all stations	+ .005	− .001	+ .004	− .001	+ .001	− .001	− .002	− .001
Mean anomalies without regard to sign, all stations	.020	.020	.020	.020	.020	.021	.021	.021
Mean anomalies with regard to sign, all stations (Seattle stations omitted)	+ .006	.000	+ .005	.000	+ .002	.000	− .001	.000
Mean anomalies without regard to sign, all stations (Seattle stations omitted)	.020	.019	.020	.019	.020	.020	.020	.020

The names, elevations, and locations of the stations are given in the table on pages 50–52. The values of $g-g_0$ for any depth are obtained by combining the correction for topography and compensation for that depth given in the table on pages 100–102, with the correction for the elevation of the station and the theoretical value of the gravity for the latitude of the station computed by the Helmert formula of 1901, which are given on pages 50–52. In this formula the value of the first term is 978.030. This is the value in dynes of the intensity of gravity at the equator. In order to get the Hayford 1912 anomalies (which were computed by a formula which is the same as that of Helmert of 1901, except that the first term is 978.038), add algebraically −0.008 to the $g-g_0$ values. For instance, the value of $g-g_0$ for station 25 and the depth 42.6 km. is −0.005. The 1912 anomaly will be −0.013 dyne.

The difference at a station between the values of $g-g_0$ for any two depths is of the same amount, but of opposite sign, to the difference between the effects of topography and compensation for the same depths in the table on pages 100–102.

The differences, $g-g_0$, between the observed gravity and the computed gravity using a depth of compensation of 42.6 km. and the Helmert 1901 formula are shown in the second column of the preceding table. The mean value of $g-g_0$ for this depth was found to be +0.012 dyne. In obtaining this mean groups of stations within limited areas were combined and each group given unit weight. The third column of the preceding table contains the anomalies for the depth 42.6 km. after the mean of the second column, +0.012, has been applied as a correction to the first term of Helmert's formula. These are the most probable anomalies from observations in the United States if a depth of compensation of 42.6 km. and a flattening of 1/298.2 are assumed. The anomalies for the other depths were obtained in a similar manner, except for the depth 60.0 km. The anomalies for this depth were obtained from the analytical solution 1c on page 123.

The use of 94 additional stations in the United States has changed the value of the first term of the United States Coast and Geodetic Survey gravity formula of 1912, based on a depth of 113.7 km., only from 978.038 to 978.036. The lowest value of the first term of the gravity formula as obtained in the preceding table is 978.029 for the depth of 184.6 km.

If individual stations are investigated, it will be found that those stations which are in mountainous regions and along the coast near deep water have the greatest range in the values of $g-g_0$ in the preceding table.

At the end of the table there is given a summary of the mean anomalies for various depths of compensation and the several values of equatorial gravity. This shows that the mean anomaly with regard to sign when stations near together are combined in groups has the same sign and is within 0.001 of the mean of all stations for each depth. It also shows that the Seattle stations at which the anomaly is −0.093 for each have little effect in deciding the character of the results. For the purpose of comparison the means with regard to sign are given below for the formula derived from the investigation of which special publication No. 12 is a report. It has 978.038 as the first term, which is also the value of gravity at the equator.

The solution by least squares which gave from data in the United States the theoretically best value of gravity at the equator and the depth of compensation is discussed on pages 123 and 124. In the above table there are given the values of the anomalies for the depth thus determined, 60 km., although the depth, 56.9 km., gives nearly the same set of values.

The summary alone gives no strong evidence in favor of any one depth of compensation, for the means without regard to sign have little change from one depth to another while the mean with regard to sign is made the same (zero) for each depth.

The means with regard to sign of the anomalies for the different depths based upon the United States Coast and Geodetic Survey formula of 1912 are given in the following table:

Mean anomalies for various depths, based upon the United States Coast and Geodetic Survey formula of 1912, $\gamma_0=978.038\ (1+0.005302\ \sin^2\phi-0.000007\ \sin^2 2\phi)$.

Depths of compensation	42.6 km.	56.9 km.	60.0 km.	85.3 km.	113.7 km.	127.9 km.	156.25 km.	184.6 km.
Mean anomaly with regard to sign, using groups	+0.004	+0.003	+0.002	+0.001	−0.002	−0.003	−0.006	−0.009
Mean anomaly with regard to sign, for all stations	+ .004	+ .003	....	.000	− .003	− .004	− .007	− .010
Mean anomaly with regard to sign, omitting Seattle stations	+ .005	+ .004	....	+ .001	− .002	− .003	− .006	− .009

This table is instructive only in showing how the computed value of gravity increases on an average with the depth of compensation.

THE RELATION BETWEEN THE DEPTH OF COMPENSATION AND THE TOPOGRAPHY.

While the mean anomalies with and without regard to sign, as shown in the summary above and the one on page 67, do not give any intimation as to which depth is the most probable one, the tables given below do seem to throw some light on this question.

The first part of the table shows the anomalies for the coast stations for the several depths, the second part has similar data for the mountainous stations below the general level, and the third one gives the data for mountainous stations above the general level, while the fourth and fifth parts of the table give the data for the stations near but not on the coasts and in the interior not in mountainous regions, respectively. The computed value in each case from which the anomalies were obtained depends upon the theoretical value of gravity at the equator, as obtained from all of the 216 stations for the particular depth.

Hayford anomalies for various depths of compensation arranged in groups according to topography.

Station number	Hayford anomaly for depth of compensation of—						
	42.6 km.	56.9 km.	85.3 km.	113.7 km.	127.9 km.	156.25 km.	184.6 km.
Twenty-seven coast stations in the order of their distances from the 1000-fathom line:							
54	−0.006	−0.010	−0.017	−0.021	−0.023	−0.025	−0.027
18	− .004	− .008	− .014	− .019	− .022	− .025	− .027
80	− .010	− .010	− .011	− .011	− .010	− .010	− .009
90	− .037	− .039	− .043	− .046	− .048	− .049	− .051
92	+ .016	+ .015	+ .013	+ .012	+ .011	+ .010	+ .010
1	+ .019	+ .015	+ .010	+ .007	+ .005	+ .003	+ .002
125	− .016	− .018	− .020	− .021	− .023	− .023	− .024
8	+ .031	+ .030	+ .028	+ .029	+ .028	+ .029	+ .030
126	− .014	− .016	− .019	− .020	− .021	− .022	− .023
215	− .022	− .023	− .025	− .027	− .029	− .029	− .030
149	− .022	− .024	− .027	− .029	− .031	− .032	− .034
164	− .009	− .010	− .011	− .012	− .012	− .012	− .011
127	− .004	− .007	− .010	− .012	− .014	− .015	− .017
5	− .009	− .010	− .011	− .011	− .012	− .011	− .011
4	+ .005	+ .004	+ .002	+ .002	+ .001	+ .001	+ .001
27	+ .025	+ .025	+ .025	+ .024	+ .024	+ .024	+ .023
26	+ .027	+ .027	+ .026	+ .026	+ .025	+ .026	+ .025
66	− .049	− .049	− .049	− .048	− .049	− .049	− .050
2	+ .029	+ .027	+ .023	+ .020	+ .019	+ .017	+ .015
161	− .015	− .016	− .018	− .019	− .020	− .021	− .021
3	+ .018	+ .017	+ .013	+ .012	+ .010	+ .009	+ .008
29	+ .009	+ .008	+ .007	+ .007	+ .006	+ .006	+ .005
30	+ .009	+ .009	+ .007	+ .007	+ .006	+ .006	+ .005
17	− .015	− .016	− .018	− .019	− .020	− .020	− .020
7	− .009	− .009	− .009	− .007	− .007	− .006	− .004
159	+ .009	+ .007	+ .003	+ .001	.000	− .002	− .003
128	− .012	− .013	− .013	− .013	− .013	− .012	− .012
Mean with regard to sign	− .002	− .003	− .006	− .007	− .008	− .009	− .009
Mean without regard to sign	.017	.017	.017	.018	.018	.018	.018

Hayford anomalies for various depths of compensation arranged in groups according to topography—Continued.

Station number	Hayford anomaly for depth of compensation of—						
	42.6 km.	56.9 km.	85.3 km.	113.7 km.	127.9 km.	156.25 km.	184.6 km.
Thirty-six stations in mountainous regions and below the general level arranged in the order of their distances below the general level:							
70	+0.003	−0.001	−0.006	−0.011	−0.014	−0.017	−0.022
156	− .005	− .007	− .011	− .013	− .014	− .016	− .018
105	− .017	− .017	− .018	− .019	− .020	− .020	− .021
202	+ .023	+ .023	+ .023	+ .023	+ .023	+ .023	+ .022
67	+ .004	− .001	− .006	− .011	− .014	− .018	− .023
153	− .019	− .020	− .021	− .021	− .021	− .021	− .021
210	− .027	− .027	− .028	− .027	− .028	− .028	− .028
175	− .019	− .019	− .021	− .022	− .023	− .025	− .026
172	− .027	− .027	− .031	− .032	− .034	− .036	− .037
85	− .005	− .003	.000	+ .003	+ .003	+ .005	+ .006
176	− .022	− .022	− .022	− .022	− .022	− .021	− .021
131	− .021	− .021	− .022	− .022	− .023	− .024	− .025
155	− .019	− .019	− .019	− .019	− .019	− .019	− .019
201	+ .023	+ .025	+ .029	+ .032	+ .033	+ .035	+ .038
63	+ .009	+ .009	+ .009	+ .009	+ .009	+ .009	+ .008
198	+ .051	+ .053	+ .054	+ .056	+ .056	+ .057	+ .057
113	− .033	− .031	− .028	− .025	− .025	− .023	− .021
130	− .038	− .038	− .037	− .037	− .037	− .037	− .038
112	+ .025	+ .028	+ .032	+ .035	+ .035	+ .038	+ .039
110	− .004	− .006	− .010	− .013	− .014	− .016	− .019
111	− .016	− .019	− .023	− .026	− .027	− .028	− .029
117	+ .031	+ .034	+ .037	+ .038	+ .038	+ .039	+ .039
115	− .009	− .007	− .007	− .007	− .008	− .009	− .012
109	+ .032	+ .034	+ .034	+ .034	+ .033	+ .032	+ .031
82	+ .022	+ .020	+ .018	+ .015	+ .014	+ .012	+ .008
45	+ .039	+ .037	+ .030	+ .022	+ .018	+ .012	+ .004
194	+ .003	+ .006	+ .010	+ .013	+ .014	+ .017	+ .018
42	+ .006	+ .003	− .001	− .005	− .007	− .010	− .015
195	+ .024	+ .024	+ .023	+ .021	+ .019	+ .017	+ .013
49	+ .009	+ .010	+ .012	+ .012	+ .012	+ .012	+ .010
44	− .020	− .017	− .014	− .014	− .015	− .016	− .018
79	− .003	+ .001	+ .006	+ .010	+ .011	+ .014	+ .015
78	− .004	− .001	+ .002	+ .004	+ .005	+ .006	+ .007
69	.000	− .001	− .005	− .008	− .010	− .012	− .017
46	+ .019	+ .023	+ .026	+ .026	+ .025	+ .025	+ .022
47	− .032	− .027	− .022	− .019	− .018	− .017	− .017
Mean with regard to sign	.000	.000	.000	− .001	− .001	− .002	− .003
Mean without regard to sign	.018	.018	.019	.020	.021	.021	.022
Twenty stations in mountainous regions and above the general level arranged in the order of their distances above the general level:							
129	− .009	− .011	− .014	− .016	− .017	− .018	− .019
71	+ .020	+ .016	+ .010	+ .005	+ .002	− .001	− .006
116	+ .002	− .003	− .012	− .019	− .023	− .028	− .033
101	+ .046	+ .045	+ .043	+ .042	+ .041	+ .041	+ .040
52	+ .019	+ .015	+ .008	+ .001	− .003	− .007	− .013
51	+ .043	+ .038	+ .030	+ .023	+ .019	+ .014	+ .009
48	+ .026	+ .021	+ .013	+ .006	+ .003	− .001	− .005
152	+ .013	+ .009	+ .002	− .003	− .005	− .008	− .011
50	+ .023	+ .018	+ .008	.000	− .004	− .009	− .015
98	+ .037	+ .034	+ .028	+ .023	+ .021	+ .018	+ .015
64	− .036	− .040	− .045	− .048	− .049	− .050	− .052
20	+ .026	+ .022	+ .015	+ .012	+ .010	+ .008	+ .006
86	+ .020	+ .016	+ .011	+ .008	+ .007	+ .005	+ .004
103	− .006	− .012	− .021	− .027	− .029	− .033	− .036
75	+ .067	+ .062	+ .057	+ .054	+ .052	+ .051	+ .050
68	+ .015	+ .012	+ .007	+ .003	+ .001	− .001	− .006
114	+ .011	+ .001	− .015	− .026	− .032	− .039	− .047
55	+ .021	+ .014	+ .004	− .001	− .004	− .007	− .009
102	+ .028	+ .022	+ .012	+ .006	+ .003	− .001	− .004
43	+ .057	+ .046	+ .032	+ .023	+ .019	+ .013	+ .006
Mean with regard to sign	+ .021	+ .016	+ .009	+ .003	+ .001	− .003	− .006
Mean without regard to sign	.026	.023	.019	.017	.017	.018	.019
Forty-six stations near the coast, in the order of their distances from the open coast:							
157	− .024	− .026	− .032	− .034	− .036	− .038	− .040
31	− .007	− .007	− .007	− .006	− .007	− .005	− .005
25	− .017	− .017	− .017	− .017	− .018	− .017	− .018
93	− .041	− .042	− .043	− .042	− .042	− .042	− .042
217	− .005	− .006	− .007	− .008	− .008	− .008	− .009
23	− .010	− .009	− .009	− .009	− .009	− .008	− .008
28	− .013	− .015	− .016	− .018	− .019	− .020	− .021
160	− .006	− .008	− .010	− .012	− .013	− .014	− .015
24	+ .024	+ .024	+ .024	+ .024	+ .023	+ .023	+ .023
124	− .026	− .027	− .029	− .031	− .032	− .033	− .034

Hayford anomalies for various depths of compensation arranged in groups according to topography—Continued.

Station number	Hayford anomaly for depth of compensation of—						
	42.6 km.	56.9 km.	85.3 km.	113.7 km.	127.9 km.	156.25 km.	184.6 km.
Forty-six stations near the coast, in the order of their distances from the open coast—Continued.							
158	−0.008	−0.010	−0.013	−0.015	−0.016	−0.018	−0.019
148	− .011	− .012	− .015	− .016	− .017	− .018	− .019
81	+ .016	+ .010	.000	− .008	− .012	− .018	− .024
147	+ .017	+ .016	+ .015	+ .015	+ .014	+ .014	+ .014
150	+ .005	+ .005	+ .004	+ .004	+ .004	+ .004	+ .003
146	+ .005	+ .005	+ .005	+ .005	+ .005	+ .005	+ .005
213	+ .015	+ .015	+ .015	+ .015	+ .014	+ .015	+ .015
173	− .008	− .009	− .010	− .009	− .010	− .009	− .008
209	+ .036	+ .036	+ .035	+ .036	+ .035	+ .036	+ .036
21	+ .037	+ .037	+ .038	+ .039	+ .039	+ .040	+ .040
22	+ .039	+ .039	+ .040	+ .041	+ .040	+ .041	+ .041
163	+ .005	+ .005	+ .004	+ .004	+ .004	+ .004	+ .004
145	+ .016	+ .016	+ .015	+ .016	+ .015	+ .016	+ .017
84	+ .037	+ .038	+ .038	+ .039	+ .039	+ .040	+ .040
216	+ .006	+ .006	+ .006	+ .007	+ .006	+ .007	+ .007
144	− .006	− .006	− .006	− .004	− .004	− .003	− .001
212	+ .048	+ .048	+ .047	+ .048	+ .047	+ .048	+ .048
214	+ .037	+ .037	+ .037	+ .038	+ .028	+ .038	+ .038
91	+ .037	+ .028	+ .038	+ .038	+ .037	+ .037	+ .037
9	− .025	− .025	− .021	− .018	− .017	− .015	− .014
65	+ .003	+ .005	+ .008	+ .011	+ .012	+ .014	+ .016
97	− .015	− .014	− .012	− .010	− .009	− .007	− .005
123	− .043	− .042	− .041	− .041	− .042	− .042	− .042
16	+ .015	+ .016	+ .017	+ .017	+ .016	+ .017	+ .017
10	− .010	− .009	− .008	− .006	− .006	− .001	− .002
11	− .012	− .011	− .010	− .008	− .007	− .006	− .004
19	− .013	− .012	− .012	− .011	− .012	− .012	− .012
151	+ .030	+ .029	+ .028	+ .027	+ .027	+ .026	+ .025
219	− .045	− .046	− .046	− .047	− .047	− .047	− .048
162	+ .021	+ .021	+ .021	+ .021	+ .021	+ .022	+ .022
165	− .019	− .020	− .022	− .023	− .023	− .023	− .023
32	− .021	− .021	− .021	− .021	− .021	− .021	− .021
94	− .019	− .018	− .017	− .015	− .015	− .013	− .012
62	+ .037	+ .035	+ .033	+ .033	+ .032	+ .032	+ .032
101	− .016	− .015	− .013	− .011	− .011	− .009	− .008
6	+ .015	+ .016	+ .017	+ .018	+ .019	+ .020	+ .022
Mean with regard to sign	+ .002	+ .002	+ .001	+ .001	+ .001	+ .001	+ .001
Mean without regard to sign	.021	.020	.020	.020	.020	.021	.021
Eighty-seven stations in the interior and not in mountainous regions, arranged in the order of elevation:							
167	− .014	− .013	− .012	− .010	− .009	− .007	− .005
95	− .005	− .003	.000	+ .003	+ .004	+ .007	+ .009
168	+ .010	+ .011	+ .012	+ .015	+ .015	+ .018	+ .020
88	− .016	− .014	− .011	− .008	− .008	− .005	− .003
13	+ .024	+ .026	+ .029	+ .032	+ .033	+ .035	+ .037
142	+ .007	+ .008	+ .011	+ .013	+ .014	+ .016	+ .019
87	+ .020	+ .020	+ .021	+ .023	+ .023	+ .024	+ .025
141	− .021	− .019	− .016	− .014	− .013	− .011	− .009
132	− .026	− .025	− .024	− .023	− .023	− .022	− .020
35	− .012	− .011	− .009	− .007	− .006	− .004	− .002
38	− .010	− .008	− .006	− .003	− .002	.000	+ .003
169	+ .011	+ .012	+ .013	+ .015	+ .015	+ .017	+ .019
120	− .010	− .009	− .009	− .006	− .006	− .003	− .001
170	+ .005	+ .006	+ .006	+ .008	+ .008	+ .010	+ .011
89	− .020	− .020	− .019	− .018	− .017	− .016	− .014
174	− .029	− .030	− .031	− .031	− .031	− .030	− .030
177	− .002	− .001	+ .001	+ .003	+ .003	+ .006	+ .008
179	− .030	− .028	− .026	− .023	− .022	− .020	− .018
36	− .011	− .010	− .007	− .005	− .005	− .003	− .002
138	− .019	− .018	− .016	− .014	− .013	− .011	− .008
104	− .027	− .025	− .024	− .022	− .022	− .021	− .021
135	− .024	− .024	− .023	− .022	− .022	− .021	− .021
143	+ .016	+ .017	+ .018	+ .020	+ .020	+ .022	+ .023
134	− .028	− .028	− .027	− .025	− .025	− .023	− .022
166	− .021	− .021	− .022	− .021	− .022	− .021	− .021
181	+ .013	+ .014	+ .016	+ .017	+ .018	+ .020	+ .022
207	− .027	− .027	− .027	− .027	− .027	− .026	− .026
14	+ .025	+ .026	+ .027	+ .028	+ .028	+ .029	+ .030
33	− .005	− .004	− .002	− .001	− .001	+ .001	+ .003
202	+ .047	+ .048	+ .050	+ .052	+ .053	+ .055	+ .057
137	+ .001	+ .001	+ .001	+ .003	+ .003	+ .004	+ .006
178	.000	+ .001	+ .001	+ .003	+ .004	+ .006	+ .007
73	+ .002	+ .003	+ .004	+ .007	+ .007	+ .009	+ .011
130	− .013	− .012	− .011	− .010	− .010	− .009	− .008
211	− .022	− .022	− .022	− .021	− .022	− .021	− .021

Hayford anomalies for various depths of compensation arranged in groups according to topography—Continued.

Station number	Hayford anomaly for depth of compensation of—						
	42.6 km.	56.9 km.	85.3 km.	113.7 km.	127.9 km.	156.25 km.	184.6 km.
Eighty-seven stations in the interior and not in mountainous regions arranged in the order of elevation—Contd.							
121	0.000	+0.001	+0.002	+0.004	+0.004	+0.006	+0.008
12	− .030	− .029	− .027	− .025	− .024	− .022	− .020
59	+ .012	+ .014	+ .017	+ .021	+ .022	+ .025	+ .028
34	− .022	− .020	− .019	− .017	− .017	− .016	− .015
74	+ .054	+ .056	+ .058	+ .061	+ .062	+ .065	+ .067
191	+ .005	+ .007	+ .010	+ .013	+ .015	+ .017	+ .020
133	− .023	− .024	− .027	− .028	− .029	− .030	− .031
37	− .007	− .006	− .005	− .003	− .003	− .001	.000
39	− .021	− .019	− .016	− .014	− .013	− .010	− .008
154	− .033	− .034	− .036	− .036	− .037	− .038	− .038
171	− .026	− .026	− .027	− .027	− .027	− .027	− .026
196	+ .033	+ .034	+ .035	+ .038	+ .038	+ .040	+ .042
140	+ .015	+ .015	+ .016	+ .018	+ .019	+ .020	+ .022
184	− .030	− .029	− .028	− .025	− .024	− .022	− .020
180	− .043	− .043	− .042	− .040	− .040	− .038	− .037
122	+ .010	+ .011	+ .011	+ .013	+ .013	+ .014	+ .016
200	+ .003	+ .004	+ .006	+ .008	+ .009	+ .012	+ .014
199	+ .013	+ .014	+ .016	+ .019	+ .020	+ .023	+ .025
15	− .021	− .021	− .022	− .021	− .021	− .021	− .021
197	+ .003	+ .004	+ .005	+ .008	+ .009	+ .011	+ .013
119	+ .011	+ .012	+ .015	+ .017	+ .018	+ .021	+ .022
182	− .052	− .052	− .050	− .048	− .047	− .046	− .044
208	− .010	− .009	− .008	− .006	− .005	− .004	− .002
204	− .027	− .026	− .026	− .024	− .023	− .022	− .020
108	− .011	− .009	− .007	− .004	− .003	.000	+ .002
185	+ .010	+ .011	+ .012	+ .014	+ .015	+ .017	+ .019
96	− .052	− .052	− .051	− .050	− .049	− .048	− .046
218 [a]	....	....	....	....	....	....	....
183	− .050	− .049	− .048	− .047	− .046	− .044	− .043
139	+ .012	+ .012	+ .012	+ .013	+ .014	+ .015	+ .016
186	+ .007	+ .008	+ .011	+ .014	+ .015	+ .018	+ .021
60	− .005	− .004	− .001	+ .003	+ .004	+ .007	+ .010
58	+ .023	+ .023	+ .023	+ .025	+ .025	+ .027	+ .028
189	+ .027	+ .029	+ .031	+ .034	+ .036	+ .038	+ .040
118	+ .006	+ .008	+ .012	+ .016	+ .017	+ .021	+ .024
57	+ .042	+ .041	+ .040	+ .040	+ .039	+ .040	+ .041
40	+ .009	+ .011	+ .013	+ .016	+ .017	+ .020	+ .022
107	+ .027	+ .026	+ .025	+ .026	+ .026	+ .027	+ .028
205	− .002	− .001	+ .001	+ .004	+ .004	+ .007	+ .009
76	− .002	− .001	+ .002	+ .004	+ .005	+ .008	+ .010
190	+ .013	+ .014	+ .016	+ .019	+ .020	+ .023	+ .025
192	+ .012	+ .014	+ .017	+ .021	+ .022	+ .025	+ .028
61	− .027	− .028	− .028	− .027	− .027	− .027	− .026
77	+ .020	+ .023	+ .026	+ .031	+ .032	+ .036	+ .038
72	+ .032	+ .033	+ .033	+ .034	+ .034	+ .035	+ .036
193	+ .025	+ .027	+ .030	+ .032	+ .033	+ .036	+ .037
206	+ .018	+ .019	+ .019	+ .020	+ .020	+ .022	+ .023
187	+ .012	+ .013	+ .014	+ .017	+ .018	+ .020	+ .022
188	+ .034	+ .035	+ .036	+ .037	+ .037	+ .039	+ .039
83	− .008	− .006	− .005	− .004	− .003	− .002	− .001
100	− .019	− .017	− .016	− .015	− .015	− .014	− .014
41	− .009	− .009	− .010	− .010	− .010	− .009	− .009
99	− .012	− .013	− .014	− .014	− .015	− .015	− .017
Mean with regard to sign	− .003	− .002	− .001	+ .001	+ .001	+ .003	+ .005
Mean without regard to sign	.018	.019	.019	.019	.019	.020	.021

[a] Not computed.

The mean value of the anomalies with regard to sign for the extreme depths for the coast stations is −0.002 for a depth of 42.6 km., and −0.009 for the depth of 184.6 km. The intermediate depths have values which fall between those two. This is an indication that at the coast the smallest depth is nearest the truth. These stations show a negative mean value for each depth which agrees with what are called the Hayford 1912 anomalies. (See p. 63.) This is as might be expected on account of the lighter material in the Cenozoic formation which is generally present along the coast. (See p. 76.)

The second table shows mean anomalies with regard to sign which are very close to zero. These are at stations in mountainous regions below the general level. The total range is only 0.003. There is no one depth which seems to be much more probable than any other.

The third table shows that the means with regard to sign for the anomalies at mountain stations above the general level have a total range of 0.027. They vary from +0.021 for depth

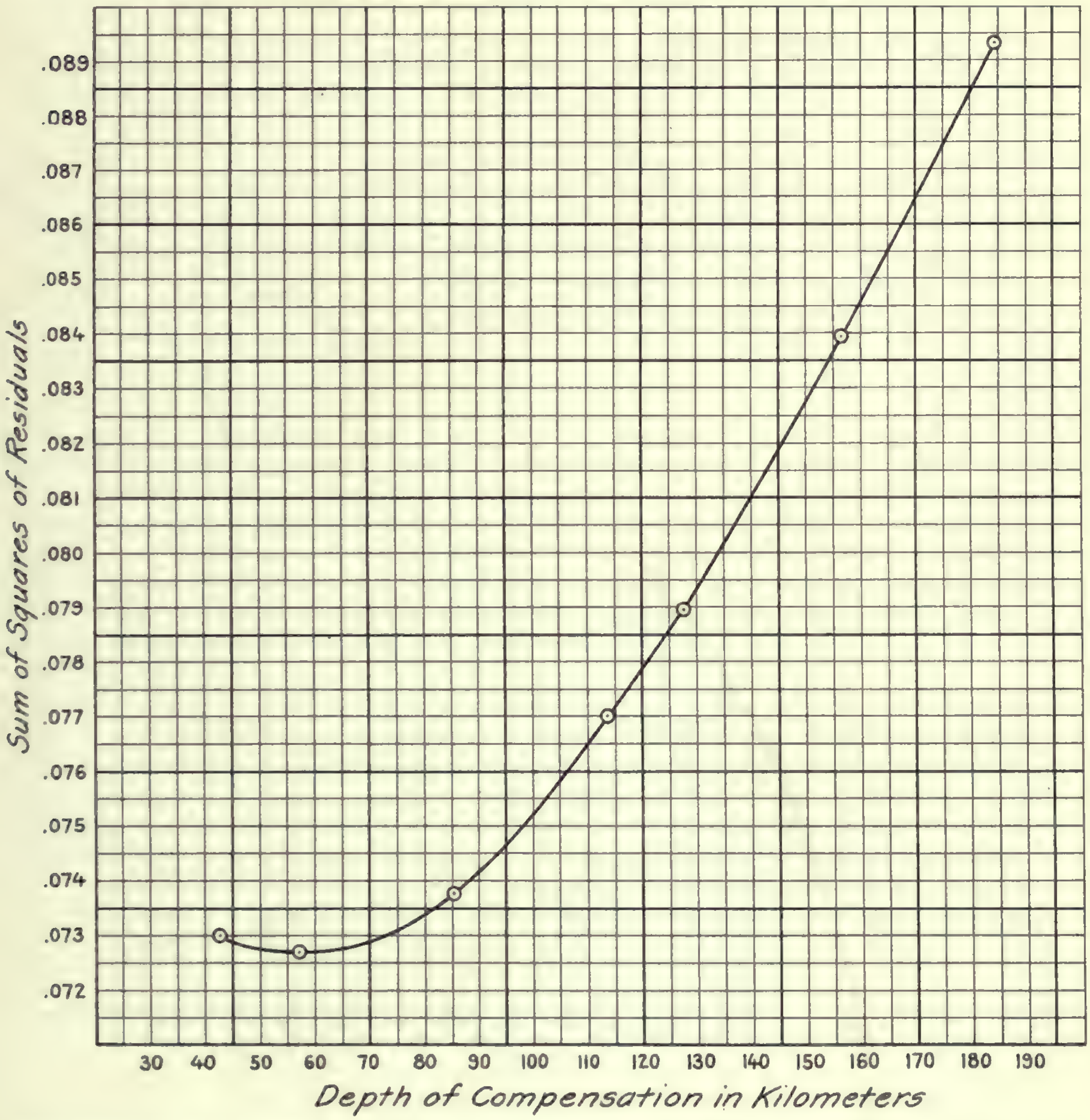

FIG. 5.—GRAPHIC DETERMINATION OF THE MOST PROBABLE DEPTH OF COMPENSATION FROM 216 STATIONS IN THE UNITED STATES.

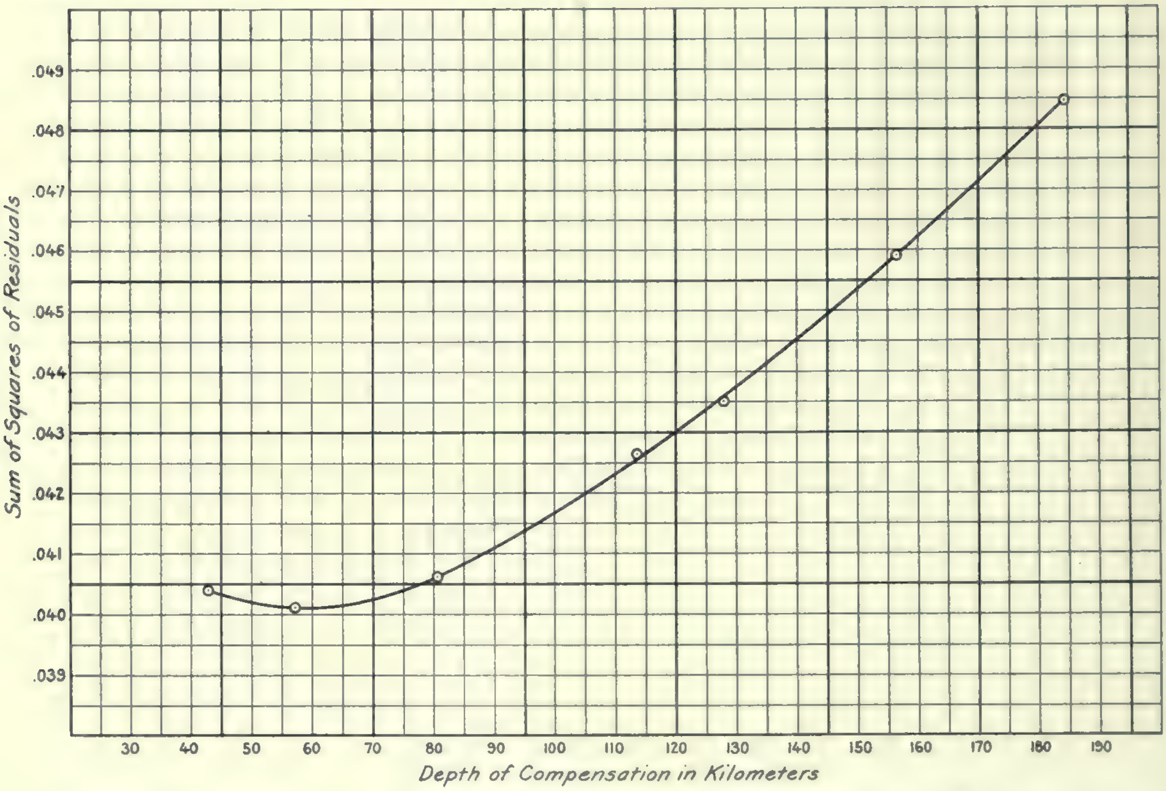

FIG. 6.—GRAPHIC DETERMINATION OF THE MOST PROBABLE DEPTH OF COMPENSATION FROM UNITED STATES STATIONS EAST OF THE NINETY-EIGHTH MERIDIAN.

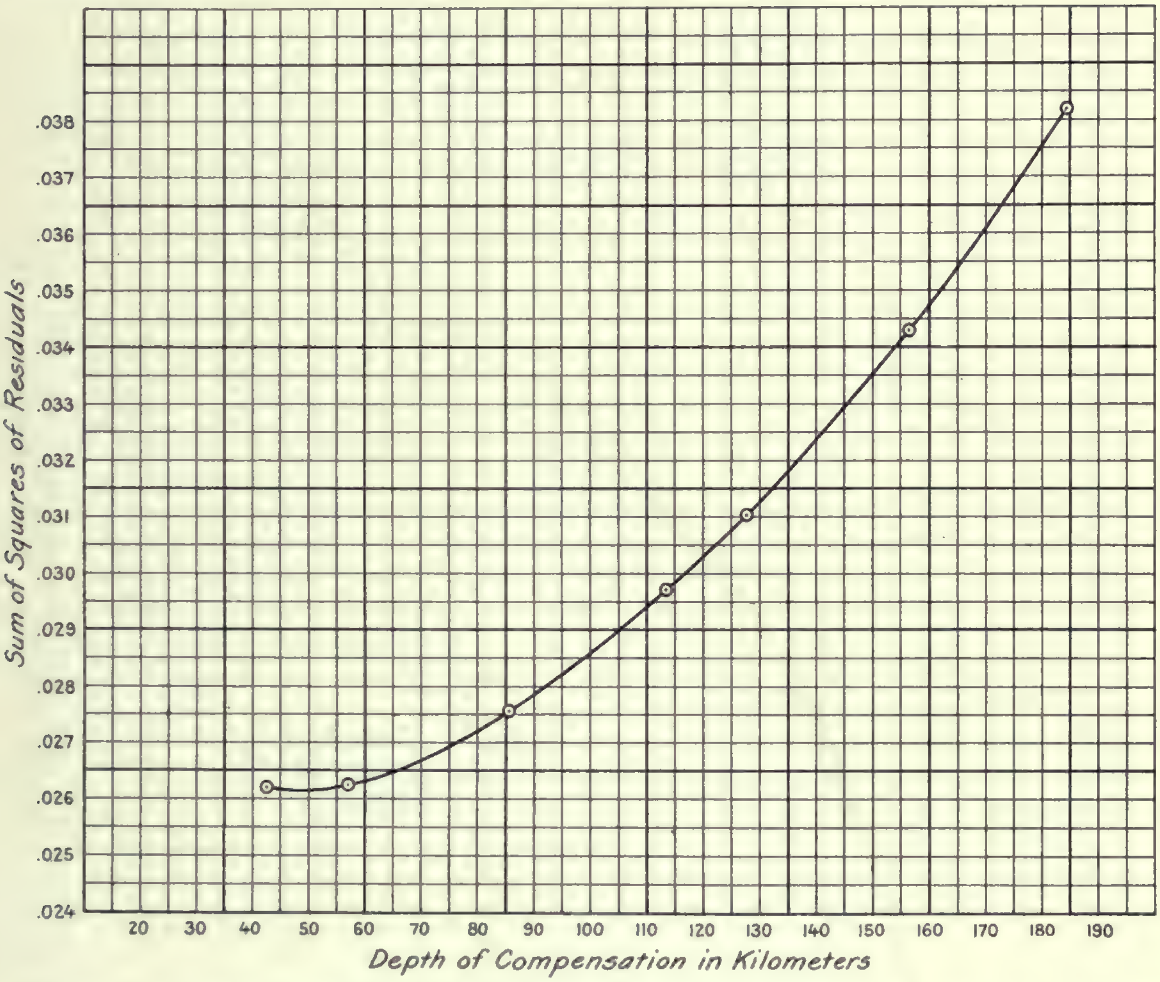

FIG. 7.—GRAPHIC DETERMINATION OF THE MOST PROBABLE DEPTH OF COMPENSATION FROM UNITED STATES STATIONS WEST OF THE NINETY-EIGHTH MERIDIAN.

42.6 km. to -0.006 for depth 184.6 km. The evidence here is strongly in favor of the greater depths.

The stations near but not on the coast have means which are close to zero for each depth. The range is from $+0.002$ for the depth 42.6 km. to $+0.001$ for the depth 184.6 km.

The stations in the interior not in mountainous regions have mean anomalies which range from -0.003 for the depth 42.6 km. to $+0.005$ for the depth 184.6 km. The intermediate depths have means which in no case are more than 0.003 from zero. The evidence from these stations is slightly in favor of the intermediate depths.

It is highly improbable that there should be two depths in mountainous regions, one for the higher land and one for the valleys, although it is possible that there may be a different depth in the mountainous regions than in the flat portions of the country.

We must conclude, therefore, that a depth of 42.6 or 56.9 km. is very improbable in the mountainous regions, for the mean values with regard to sign for the stations above the general level are $+0.021$ and $+0.016$ for those two depths, respectively, while for the stations below the general level the means are 0.000 and 0.000. There seems to be no evident explanation for this difference, aside from the effect of the depth, as the stations in any one of the topographic groups do not fall largely in any one geologic formation, as do the coast stations.

The depth 184.6 km. gives mean values of -0.006 for the high stations and -0.003 for the low ones. While these values agree quite closely, yet they differ an appreciable amount from the means of all of the 219 anomalies in the whole country.

The depth which seems to give the smallest mean values for the two groups is 127.9 km. The mean for the high stations in mountainous regions for this depth is $+0.001$ and for low stations it is -0.001.

The data given in the table on pages 107 to 110, which show the relation between the anomalies and the topography indicate that the depths 42.6 and 184.6 km. are not so near the truth as are intermediate values. They also seem to indicate that the value is probably over 100 km. It is realized by the author that this conclusion is contrary to that arrived at from the determination of the most probable depth from the 216 stations by the method of least squares (see p. 123), which is 60 km. when the flattening, 1/298.2, is held fixed, or 70.9 km. when the flattening also is determined by the solution. It is believed that the portion of the anomalies at coast stations due to the presence of the Cenozoic geologic formation with densities less than normal had a considerable part in making the depth from all the 216 stations as low as 60 km.

GRAPHIC DETERMINATION OF THE MOST PROBABLE DEPTH OF COMPENSATION.

According to the theory of probabilities the most probable depth of compensation is that one for which the sum of the squares of the residuals or anomalies is a minimum. The residuals are of course assumed to be due only to accidental errors, and hence are as apt to be positive as negative. The values in the table on pages 103-105, in the columns headed $g-(g_0+12)$, $g-(g_0+11)$, etc., were used in obtaining the sum of the squares of the anomalies for each of the depths.

The sum of the squares is smaller for the smallest two depths of compensation than for the other depths given in the table. The equation of the curve which most nearly fits the sums of the squares for the different depths was derived and its minimum point comes at the depth of 57.1 km.

The sums of the squares for the several depths were also plotted on figure 5, and a curve was drawn through the several points. The lowest point on the curve falls between the depths 42.6 km. and 56.9 km., and the value of the depth at the lowest point is 55.5 km., with an uncertainty from plotting and scaling of about 4 km. This value is only 1.6 km. from the minimum point of the curve as found above from its equation.

A depth for the eastern half of the United States (east of the ninety-eighth meridian) was determined by plotting the sum of the squares on figure 6. The lowest point of the curve falls at a depth of 62 km. The uncertainty of the plotting and scaling is not more than about 4 km.

Likewise a depth was determined for the western half of the United States, as shown in figure 7. Here the minimum point on the curve falls at the depth 48 km., with an uncertainty from plotting and scaling of about 4 km.

An analysis of the table giving the anomalies for the different topographic groups (see pp. 107 to 110) makes it apparent that the results at those stations near but not on the coast and at those in the interior which are not in mountainous regions above the general level, are not more strongly in favor of one depth than any other. This fact causes the influence of the mountain stations above the general level to be less than the plains stations in a determination of the most probable depth of compensation where all stations are involved. This is due to the fact that there are only 20 stations in mountainous regions above the general level, while there are 169 stations in the groups mentioned above.

As the mountain stations are more sensitive to a change in the depth of compensation, it was decided to determine graphically the most probable depth from those stations alone, 56 in number. The resulting curve for these stations is shown in figure 8. The plotted points are the sum of the squares of the residuals or anomalies. These are based on a value of gravity at the equator so derived from all stations in the United States as to make the mean anomaly for the United States zero. The depth determined from this curve is 104 km. which differs materially from the depths obtained from the other three curves (figs. 5, 6 and 7) which were between 48 and 62 km.

An analytical solution of the problem was also made. In this solution the mean flattening was held fixed as in the graphical determination, but the gravity at the equator was determined from the 56 stations themselves instead of from all the stations in the United States. The depth determined was 94.9 km., only 9 km. from the value obtained graphically in spite of the difference in methods and assumptions.

It is interesting that the depths obtained by Hayford from deflections of the vertical in several groups (Nos. 14, 8, 7, and 4) of stations in mountainous regions are 84, 66, 152, and 85 km. The value is 97 if a straight mean for the 4 groups is taken. This agrees well with the values determined analytically from gravity data for mountainous regions, which for the 56 stations is 94.9 km.

The sums of the squares of the anomalies, for the several depths, for the 20 stations in mountainous regions above the general level were plotted on figure 9 and the minimum point of the curve drawn through the plotted points gives the most probable depth as 124 km. This value is only 20 km. different from the most probable depth obtained graphically from the data for all mountain stations.

The values from the analytical determinations of the most probable depths of compensation from all of the stations in the United States, in the eastern half of this country, in the western half, and in the mountainous regions agree well with those from the graphic solutions discussed above. See pages 113 to 131 for the analytical determination of the depth of compensation, the flattening of the earth, and the theoretical value of gravity at the equator.

The stations not in the United States were not used to obtain the most probable depth of compensation, as the necessary data for them were not available.

The author is inclined to favor the depth of 94.9 km. as being nearer the truth than the lower depths, and besides it agrees more nearly with the depth as obtained from deflections of the vertical by Hayford.[a] We may conclude that the most probable depth of the compensation as derived from the gravity data is 94.9 km.

It is believed that the value, 97 km., obtained by Hayford from deflections of the vertical in mountainous regions is nearer the truth for the average depth of compensation than his values 113.7 and 120 km. If the depth from gravity data and the depth 97 km. mentioned above are given equal weight the mean depth of compensation is **96** km. which the author believes is the best one available from all geodetic data.

This value, of course, must not be considered as having extreme accuracy, for no doubt a depth determined from much more gravity and deflection data would be different. The author believes that future determinations of the depth from more extensive data will fall between 80 and 130 km.

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[a] See Figure of the Earth and Isostasy from Measurements in the United States, and Supplementary Investigation in 1909 of the Figure of the Earth and Isostasy, J. F. Hayford, 1909.

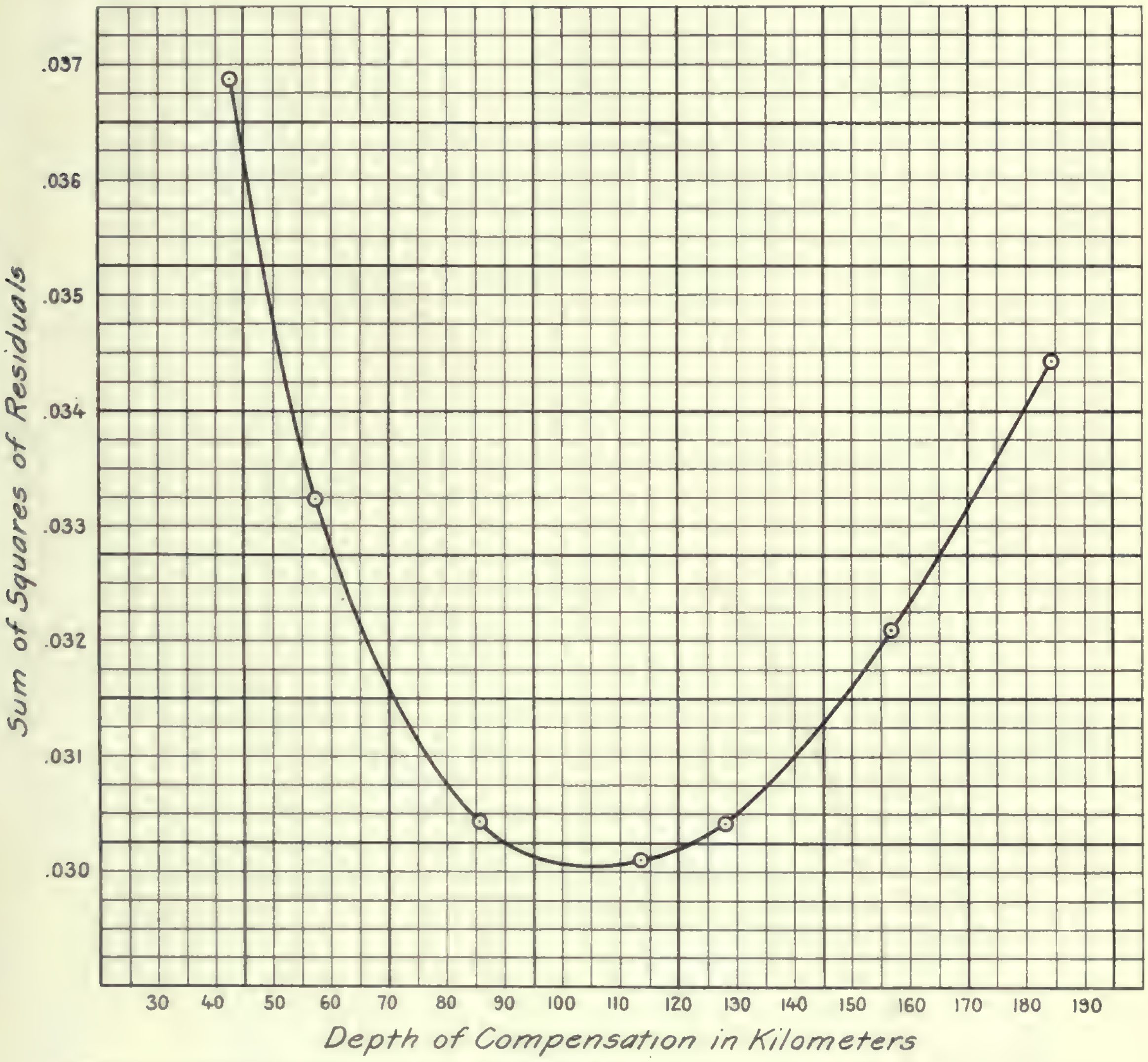

FIG. 8.—GRAPHIC DETERMINATION OF THE MOST PROBABLE DEPTH OF COMPENSATION FROM 56 UNITED STATES STATIONS IN MOUNTAINOUS REGIONS.

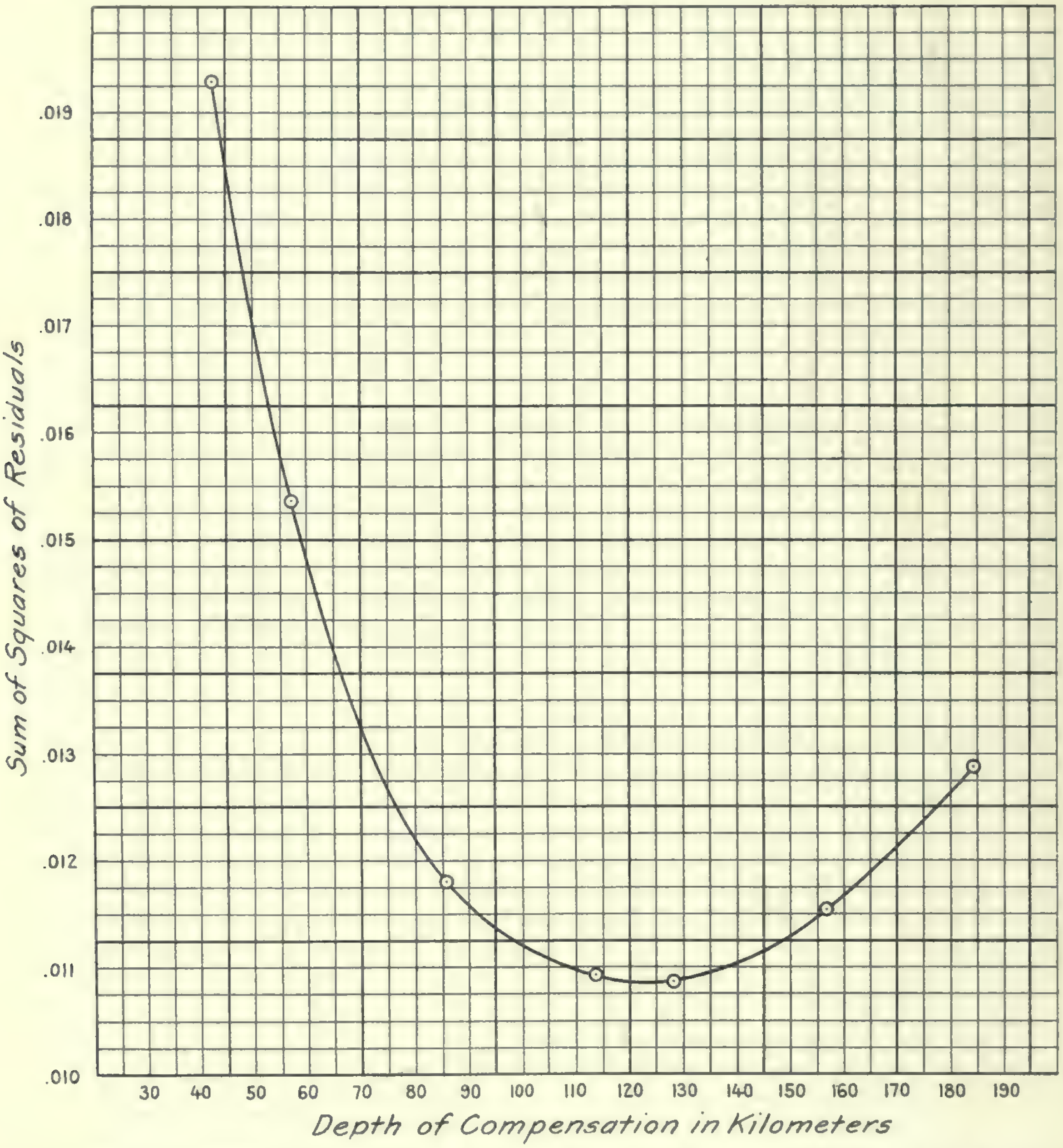

FIG. 9.—GRAPHIC DETERMINATION OF THE MOST PROBABLE DEPTH OF COMPENSATION FROM 20 UNITED STATES STATIONS IN MOUNTAINOUS REGIONS AND ABOVE THE GENERAL LEVEL.

CONSTANTS FOR THE GRAVITY FORMULAS AND THE MOST PROBABLE DEPTHS OF COMPENSATION DERIVED BY ANALYTICAL METHODS FROM GRAVITY DATA.

The method of computing the factors by which the effect of topography and compensation was obtained for various depths of compensation, together with the computed effects of these changes of depth and the anomalies for the several depths are given on pages 97–106. The following analytical solution was made to determine the constants for the gravity formulas and to determine the most probable depths of compensation.

The formula for γ_0, the theoretical gravity at sea level in geographic latitude φ, may be written in the form

$$\gamma_0=\gamma_e(1+B\sin^2\phi-\tfrac{1}{4}B_4\sin^2 2\phi) \tag{1}$$

γ_e is the gravity at the equator at sea level, B and B_4 are coefficients, the former determined from gravity observations, the latter found theoretically by Darwin and Wiechert from the assumption that the internal strata of the earth have the same form as if they were completely fluid. Their results, based on different laws of internal density, agree in giving $\frac{1}{4}B_4=0.000007$, which will be used throughout the publication.

Helmert's determination of the constants gives for his formula of 1901 on the Potsdam system

$$\gamma_0=978.030\ (1+0.005302\sin^2\varphi-0.000007\sin^2 2\varphi) \tag{2}$$

If a value be assumed for the equatorial radius of the earth, the ellipticity or flattening of the earth, denoted by f, may be found from the formula,

$$f=\frac{5}{2}m-B-\left(\frac{10}{3}m^2-\frac{17}{14}mB-\frac{B^2}{21}-\frac{2}{21}B_4\right) \tag{3}$$

In this formula B and B_4 are the same quantities as in formula (1) and m is the ratio of the centrifugal force of the earth's rotation at the equator to gravity at the equator, or $m=\frac{\omega^2 A}{\gamma_e}\cdot$ ω is the angular velocity in radians, expressed in the time unit used in γ_0. A is the equatorial radius of the earth expressed in the linear unit used in γ_0. The simple formula $f=\frac{5}{2}m-B$ is known as Clairaut's equation. The above formula is derived from Helmert (Höhere Geodäsie, Vol. II, p. 83), and may be termed Clairaut's formula, extended to terms of the second order. The value of $f=\frac{1}{298.3}$ was originally given by Helmert as derived from his formula of 1901. This is based on Bessel's equatorial radius of the earth. A larger value of this quantity such as best represents modern observations gives $f=\frac{1}{298.2}\cdot$ The value of A used in deriving the values from the gravity observations treated in this work is 6378388 meters, from Hayford's "Supplementary Investigation in 1909 of the Figure of the Earth and Isostasy," page 60.

Equation (1) may be transformed into a shape somewhat more convenient for the purpose in hand, namely,

$$\gamma_0=G-b\cos 2\phi+d\cos^2 2\phi \tag{4a}$$

The significance of the constants of the new form and the relations between them and those of the old are,

$$G=\text{gravity at latitude }45^\circ=\gamma_e\left(1+\frac{B}{2}-\frac{B_4}{4}\right)$$

$$2b=\text{polar gravity minus equatorial gravity}=\gamma_e B$$

$d=\frac{1}{4}\gamma_e B_4$, which to the degree of accuracy involved in the theoretical developments for B_4 may, like B_4, be considered as constant.

Also $$\gamma_e=G-b+d \tag{4b}$$

And $$B=\frac{2b}{G-b+d} \tag{4c}$$

Let the subscript zero affixed to G, B, and b denote those numerical values corresponding to Helmert's formula of 1901, also $G=G_o+x$ and $b=b_o+y$ signify the values determined from the observations; x is the correction to gravity at latitude 45°, y is half the correction to the quantity, polar gravity *minus* equatorial gravity.

Then,

$$G_o=980.61591 \text{ dynes and } b_o=2.59276 \text{ dynes}$$

With these Helmert values, equation (4) becomes

$$\gamma_o=980.61591-2.59276 \cos 2\phi+0.00685 \cos^2 2\phi \tag{5}$$

or with the corrections applied

$$\gamma_o=980.61591+x-(2.59276+y) \cos 2\phi+0.00685 \cos^2 2\phi \tag{6a}$$

Let g be the observed value of gravity and g_c' the value of gravity computed from (2) or its equivalent (5), including corrections for elevation, topography, and compensation *for a fixed depth.*

Let $n'=g-g_c'$ the gravity anomaly corresponding to formula (2) or (5). The value of gravity computed from the corrected formula is $g_c'+x-y \cos 2\phi$

An observation of the general form is

Observed value *minus* computed value = residual (v)

whence

$$\left.\begin{aligned} g-(g_c'+x-y\cos 2\phi)&=v \\ \text{or} \qquad x-y\cos 2\phi-n'&=-v \end{aligned}\right\} \tag{6b}$$

This is the form of an observation equation for a particular gravity station if the depth of compensation be considered fixed.

If the assumed depth (t) be considered subject to a correction (z), then n' depends on z. To put the equation in linear form, let c be the rate of change with regard to depth of the total correction for topography and compensation of the station in question or $c=\frac{\partial g_c}{\partial t}$ since it is only through this correction for topography and compensation that g_c is affected by a change in t. Then if g_c be the computed gravity at a depth $t+z$ sufficiently near to the assumed depth t

$$g_c=g_c'+cz$$

and replacing g_c' in (6b) by this value of g_c there results

$$x-y \cos 2\phi+cz-n'=-v \tag{7}$$

which is the form of observation equation when a corrected depth of compensation is to be determined.

These observation equations are shown in the following table. Further explanations follow immediately after the table.

Observation equations for obtaining corrections to the coefficients of the gravity formula and to the depth of compensation.

Station number	Double latitude 2φ	Coefficient of—			Constant term for solution number—							
		x	y	z	1	2	3	4	5	6	7	8
	° ′											
17 In	37 47.5	+1	−0.790									−6.3
18 In	40 58.2	+1	− .755									− .6
5 In[a]	41 51.7	+1	− .745									−2.7
39 In[a]	42 00.0	+1	− .743									−2.0
88 In	42 27.9	+1	− .738									+ .2
26 In[a]	42 36.7	+1	− .736									−3.2
4 In	42 43.0	+1	− .735									+ .3
8 In[a]	42 56.3	+1	− .732									−3.1
50 In[a]	43 39.0	+1	− .724									−4.7
9 In[a]	43 48.3	+1	− .722									−3.9
13 In[a]	44 07.8	+1	− .718									−1.4
98 In	44 11.0	+1	− .717									−3.7
99 In[a]	44 23.0	+1	− .715									−2.4
72 In[a]	44 26.7	+1	− .714									− .5
73 In[a]	44 47.3	+1	− .710									+1.9
65 In[a]	45 06.3	+1	− .706									+1.4
37 In[a]	45 30.0	+1	− .701									−2.1
84 In[a]	45 33.4	+1	− .700									− .9
43 In[a]	46 17.8	+1	− .691									−3.1
106 In[a]	46 22.0	+1	− .690									+1.0
12 In[a]	46 31.9	+1	− .688									−2.2
91 In	46 46.2	+1	− .685									−3.1
107 In[a]	47 03.2	+1	− .681									−3.0
20 In[a]	47 39.8	+1	− .673									− .4
48 In[a]	47 40.8	+1	− .673									− .8
97 In[a]	47 43.6	+1	− .673									−1.1
19 In[a]	48 04.2	+1	− .668									−2.5
45 In[a]	48 14.4	+1	− .666									−4.0
14 In[a]	48 21.4	+1	− .664									−2.6
16 In[a]	48 25.3	+1	− .664									− .5
59 In[a]	48 31.3	+1	− .662									+ .3
41 In[a]	49 03.9	+1	− .655									− .2
1	49 07.2	+1	− .654	+0.75	−2.6	−1.3	−4.8	−2.6		−1.3		−1.3
31 In[a]	49 17.6	+1	− .652									−2.0
55 In[a]	49 23.0	+1	− .651									+ .1
29 In	49 35.4	+1	− .648									− .3
96 In[a]	49 54.7	+1	− .644									− .9
52 In[a]	50 04.9	+1	− .642									−3.9
67 In[a]	50 34.1	+1	− .635									+ .5
70 In	50 45.8	+1	− .633									+2.5
103 In[a]	50 51.7	+1	− .631									−2.9
3 In	50 51.8	+1	− .631									− .9
42 In[a]	50 54.1	+1	− .631									−1.5
157	50 56.8	+1	− .630	+ .70	+1.5	+2.8	− .1	+1.5		+2.8		+2.8
6 In[a]	51 08.3	+1	− .627									+2.8
15 In[a]	51 09.4	+1	− .627									+1.4
8	52 09.4	+1	− .614	+ .37	−4.1	−3.5	−5.0	−4.1		−3.5		−3.5
78 In[a]	52 14.2	+1	− .612									+4.2
33 In[a]	52 27.9	+1	− .609									+ .7
60 In[a]	52 35.5	+1	− .608									+5.7
40 In[a]	53 02.5	+1	− .601									+2.0
101 In[a]	53 23.6	+1	− .596									+3.9
24 In[a]	53 24.0	+1	− .596									+ .5
2	53 25.6	+1	− .596	+ .63	−3.8	−2.6	−5.7	−3.8		−2.6		−2.6
32 In[a]	53 29.9	+1	− .595									+7.0
3[a]	53 52.4	+1	− .590	+ .53	−2.8	−1.8	−3.8	−2.8		−1.8		−1.8
95 In[a]	54 12.2	+1	− .585									−5.4
1 In[a]	54 20.7	+1	− .583									−1.7
77 In[a]	54 56.8	+1	− .574									−1.5
158[a]	55 00.4	+1	− .573	+ .53	− .1	+ .9	−1.4	− .1		+ .9		+ .9
9	55 01.0	+1	− .573	− .09	+1.2	+1.2	+ .9		+1.2		+1.2	+1.2
35 In[a]	55 13.7	+1	− .570									−1.1
2 In[a]	55 47.1	+1	− .562									+ .6
51 In[a]	56 28.6	+1	− .552									+1.9
38 In	56 33.1	+1	− .551									−3.8
30 In[a]	57 06.1	+1	− .543									− .5
159	57 13.4	+1	− .541	+ .56	−1.8	− .7	−3.0	−1.8		− .7		− .7
160	57 37.2	+1	− .536	+ .45	− .3	+ .6	−1.5	− .3		+ .6		+ .6
161	58 16.6	+1	− .526	+ .41	+ .5	+1.3	− .3	+ .5		+1.3		+1.3
7	58 34.4	+1	− .521	+ .20	− .2	+ .1	− .6	− .2		+ .1		+ .1
44 In	59 01.8	+1	− .515									+ .7
100 In[a]	59 05.5	+1	− .514									+5.8
4	59 27.0	+1	− .508	+ .39	−1.5	− .8	−2.3	−1.5		− .8		− .8
93 In[a]	59 44.7	+1	− .504									+4.4
5	59 54.0	+1	− .502	+ .34	− .1	+ .5	− .8	− .1		+ .5		+ .5

[a] This station is used only with near-by stations to give a single observation equation. See table of groups on p. 119.

Observation equations for obtaining corrections to the coefficients of the gravity formula and to the depth of compensation—Con.

Station number	Double latitude 2φ		Coefficient of—			Constant term for solution number—							
			x	y	z	1	2	3	4	5	6	7	8
	°	'											
62	60	02.6	+1	−0.499	+0.39	−4.6	−3.9	−5.2	......	−4.6	......	−3.9	−3.9
87 In[a]	60	24.5	+1	− .494	......	......	......	......	......	......	......	......	− .9
10[a]	60	33.0	+1	− .492	+ .11	− .2	.0	+ .3	−0.2	......	0.0	......	.0
11[a]	60	34.4	+1	− .491	+ .11	.0	+ .2	+ .3	.0	......	+ .2	......	+ .2
22 In[a]	60	39.0	+1	− .490	......	......	......	......	......	......	......	......	− .6
98	60	43.0	+1	− .489	+ .85	−4.5	−2.9	−6.2	......	−4.5	......	−2.9	−2.9
89 In[a]	60	48.4	+1	− .488	......	......	......	......	......	......	......	......	−2.7
164	60	49.0	+1	− .488	+ .31	− .1	+ .6	− .8	− .1	......	+ .6	......	+ .6
75 In[a]	60	55.2	+1	− .486	......	......	......	......	......	......	......	......	−5.5
71 In	61	19.6	+1	− .480	......	......	......	......	......	......	......	......	−1.9
92	61	20.4	+1	− .480	+ .41	−2.6	−1.8	−3.5	−2.6	......	−1.8	......	−1.8
93[a]	61	38.4	+1	− .475	+ .28	+3.1	+3.6	+1.8	+3.1	......	+3.6	......	+3.6
144	62	37.2	+1	− .460	+ .17	− .5	− .2	−1.1	− .5	......	− .2	......	− .2
64	62	42.6	+1	− .458	+ .67	+2.9	+4.2	+ .4	......	+2.9	......	+4.2	+4.2
66 In	63	03.2	+1	− .453	......	......	......	......	......	......	......	......	−4.1
163	63	08.6	+1	− .452	+ .33	−1.6	−1.0	−2.1	−1.6	......	−1.0	......	−1.0
97	63	12.4	+1	− .451	+ .03	+ .3	+ .4	− .4	+ .3	......	+ .4	......	+ .4
145[a]	63	23.0	+1	− .448	+ .30	−2.7	−2.2	−3.3	−2.7	......	−2.2	......	−2.2
63	63	32.6	+1	− .446	+ .19	−2.0	−1.5	−1.6	......	−2.0	......	−1.5	−1.5
173	63	38.8	+1	− .444	+ .29	− .2	+ .3	−1.3	− .2	......	+ .3	......	+ .3
6	64	56.0	+1	− .424	+ .12	−2.7	−2.4	−3.2	−2.7	......	−2.4	......	−2.4
61	64	56.8	+1	− .423	+ .26	+1.7	+2.1	+1.2	......	+1.7	......	+2.1	+2.1
165	65	17.0	+1	− .418	+ .45	+ .9	+1.8	+ .1	+ .9	......	+1.8	......	+1.8
65	65	26.6	+1	− .416	− .13	−1.6	−1.7	− .7	......	−1.6	......	−1.7	−1.7
17	65	34.4	+1	− .414	+ .38	+ .5	+1.3	− .3	+ .5	......	+1.3	......	+1.3
162[a]	65	39.6	+1	− .412	+ .25	−3.2	−2.7	−3.4	−3.2	......	−2.7	......	−2.7
94	66	15.2	+1	− .403	+ .06	+ .7	+ .9	+ .1	+ .7	......	+ .9	......	+ .9
142	66	51.0	+1	− .393	− .06	−1.9	−1.9	−2.0	−1.9	......	−1.9	......	−1.9
174	67	01.6	+1	− .390	+ .31	+1.9	+2.5	+1.4	+1.9	......	+2.5	......	+2.5
167	67	13.0	+1	− .387	+ .07	+ .2	+ .4	− .1	+ .2	......	+ .4	......	+ .4
15[a]	67	30.0	+1	− .383	+ .24	+1.0	+1.5	+ .1	+1.0	......	+1.5	......	+1.5
73	67	30.6	+1	− .383	+ .07	−1.4	−1.3	−1.2	−1.4	......	−1.3	......	−1.3
66	67	46.8	+1	− .378	+ .19	+3.8	+4.2	+4.2	......	+3.8	......	+4.2	+4.2
16	67	49.6	+1	− .377	+ .13	−2.7	−2.3	−3.5	−2.7	......	−2.3	......	−2.3
149	68	28.4	+1	− .367	+ .55	+1.3	+2.3	.0	+1.3	......	+2.3	......	+2.3
99	68	46.4	+1	− .362	+ .31	+ .2	+ .8	− .3	......	+ .2	......	+ .8	+ .8
143[a]	69	00.2	+1	− .358	+ .07	−2.8	−2.6	− 3.0	−2.8	......	−2.6	......	−2.6
96[a]	69	10.4	+1	− .356	+ .16	+4.1	+4.4	+ 2.9	+4.1	......	+4.4	......	+4.4
150	69	24.0	+1	− .352	+ .28	−1.6	−1.0	− 2.3	−1.6	......	−1.0	......	−1.0
18	69	26.2	+1	− .351	+ .85	− .3	+1.3	− 2.3	− .3	......	+1.3	......	+1.3
166[a]	69	27.6	+1	− .351	+ .27	+1.0	+1.5	+ 1.2	+1.0	......	+1.5	......	+1.5
13[a]	69	30.0	+1	− .350	− .06	−3.7	−3.8	− 3.9	−3.7	......	−3.8	......	−3.8
12	69	52.4	+1	− .344	− .02	+1.8	+1.9	+ 1.8	+1.8	......	+1.9	......	+1.9
168	70	17.6	+1	− .337	+ .08	−2.2	−2.1	− 2.3	−2.2	......	−2.1	......	−2.1
153	70	18.8	+1	− .337	+ .37	+ .9	+1.5	+ 1.3	+ .9	......	+1.5	......	+1.5
72	70	25.6	+1	− .335	+ .19	−4.4	−4.0	− 4.7	......	−4.4	......	−4.0	−4.0
151[a]	70	27.6	+1	− .334	+ .29	−4.0	−3.3	− 4.8	−4.0	......	−3.3	......	−3.3
141[a]	70	46.6	+1	− .329	− .05	+ .8	+ .8	+ 1.5	+ .8	......	+ .8	......	+ .8
70	71	03.6	+1	− .325	+ .76	−1.0	+ .5	− .9	......	−1.0	......	+ .5	+ .5
71	71	11.6	+1	− .322	+ .82	−2.7	−1.1	− 2.8	......	−2.7	......	−1.1	−1.1
152	71	11.8	+1	− .322	+ .89	−2.0	− .3	− 2.9	−2.0	......	− .3	......	− .3
14[a]	71	13.4	+1	− .322	+ .06	−3.8	−3.4	− 4.0	−3.8	......	−3.4	......	−3.4
148	71	13.6	+1	− .322	+ .44	+ .1	+1.0	− .9	+ .1	......	+1.0	......	+1.0
155[a]	71	55.4	+1	− .310	+ .25	+ .8	+1.3	+ 1.4	+ .8	......	+1.3	......	+1.3
91	72	00.4	+1	− .309	+ .23	−4.9	−4.4	− 5.8	−4.9	......	−4.4	......	−4.4
68[a]	72	07.8	+1	− .307	+ .73	−2.3	− .9	− 4.3	......	−2.3	......	− .9	− .9
69[a]	72	10.6	+1	− .306	+ .56	−1.0	+ .2	+ 9.8	......	−1.0	......	+ .2	+ .2
154[a]	72	12.2	+1	− .306	+ .43	+2.3	+3.0	+ 1.8	+2.3	......	+3.0	......	+3.0
102[a]	72	12.4	+1	− .306	+1.15	−3.3	−1.2	−14.2	−3.3	......	−1.2	......	−1.2
103[a]	72	17.0	+1	− .304	+1.10	+ .1	+2.1	− 3.2	+ .1	......	+2.1	......	+2.1
101[a]	72	51.8	+1	− .295	+ .41	−5.6	−4.8	− 6.3	−5.6	......	−4.8	......	−4.8
169	72	58.6	+1	− .293	+ .11	−2.3	−2.1	− 1.9	−2.3	......	−2.1	......	−2.1
156[a]	73	10.8	+1	− .289	+ .58	− .4	+ .7	− .5	− .4	......	+ .7	......	+ .7
95	73	11.0	+1	− .289	− .10	− .8	− .9	− 1.0	− .8	......	− .9	......	− .9
147[a]	73	20.4	+1	− .287	+ .30	−2.7	−2.1	− 3.6	−2.7	......	−2.1	......	−2.1
100	73	21.4	+1	− .286	+ .08	+ .6	+ .9	+ 1.0	......	+ .6	......	+ .9	+ .9
90	73	41.0	+1	− .281	+ .61	+2.8	+4.0	+ 1.5	+2.8	......	+4.0	......	+4.0
170	73	43.2	+1	− .280	+ .12	−1.7	−1.4	− 2.0	−1.7	......	−1.4	......	−1.4
140	74	10.8	+1	− .273	+ .12	−2.6	−2.4	− 2.5	−2.6	......	−2.4	......	−2.4
55[a]	74	40.8	+1	− .264	+1.15	−2.5	− .5	−12.5	......	−2.5	......	− .5	− .5
146[a]	75	04.4	+1	− .258	+ .22	−1.6	−1.1	− 2.1	−1.6	......	−1.1	......	−1.1
171	75	17.8	+1	− .254	+ .30	+1.5	+2.2	+ 1.0	+1.5	......	+2.2	......	+2.2
176	75	21.2	+1	− .253	+ .22	+1.1	+1.6	+ 2.0	+1.1	......	+1.6	......	+1.6
139	75	22.2	+1	− .253	+ .23	−2.3	−1.9	− 3.1	−2.3	......	−1.9	......	−1.9
67	75	24.4	+1	− .252	+ .78	−1.0	+ .5	− 2.2	......	−1.0	......	+ .5	+ .5
175[a]	75	34.4	+1	− .249	+ .42	+ .8	+1.6	+ 1.1	+ .8	......	+1.6	......	+1.6
54[a]	75	35.0	+1	− .249	+ .89	− .1	+1.5	− 3.0	......	− .1	......	+1.5	+1.5
172[a]	75	38.2	+1	− .248	+ .59	+1.6	+2.6	+ 2.9	+1.6	......	+2.6	......	+2.6
215	75	57.6	+1	− .243	+ .43	+1.2	+2.1	+ .2	+1.2	......	+2.1	......	+2.1

[a] This station is used only with near-by stations to give a single observation equation. See table of groups on p. 119.

Observation equations for obtaining corrections to the coefficients of the gravity formula and to the depth of compensation—Con.

Station number	Double latitude 2φ		Coefficient of—			Constant term for solution number—							
	°	′	x	y	z	1	2	3	4	5	6	7	8
19	76	04.0	+1	−0.241	+0.18	+0.1	+0.5	+0.3	+0.1	....	+0.5	....	+0.5
216	76	36.2	+1	−.232	+.20	−1.7	−1.3	−1.7	−1.7	....	−1.3	....	−1.3
104 [a]	76	41.8	+1	−.230	+.03	+1.4	+1.6	+2.6	+1.4	....	+1.6	....	+1.6
25M	76	54.6	+1	−.226	....	....	....	....	....	....	....	....	+6.6
45	77	05.2	+1	−.223	+.90	−4.8	−2.8	−2.7	....	−4.8	....	−2.8	−2.8
38	77	16.0	+1	−.220	−.03	−.3	−.3	−.4	−.3	....	−.3	....	−.3
40	77	27.4	+1	−.217	−.02	−2.2	−2.2	−1.6	....	−2.2	....	−2.2	−2.2
214 [a]	77	35.4	+1	−.215	+.21	−4.8	−4.4	−5.5	−4.8	....	−4.4	....	−4.4
213 [a]	77	38.0	+1	−.214	+.20	−2.6	−2.1	−2.8	−2.6	....	−2.1	....	−2.1
43 [a]	77	40.6	+1	−.213	+1.61	−5.7	−2.9	−21.6	....	−5.7	....	−2.9	−2.9
42 [a]	77	41.4	+1	−.213	+.66	−1.4	−.1	+.6	....	−1.4	....	−.1	−.1
21 [a]	77	46.4	+1	−.212	+.13	−4.8	−4.5	−4.9	−4.8	....	−4.5	....	−4.5
22 [a]	77	46.6	+1	−.212	+.13	−5.0	−4.7	−5.0	−5.0	....	−4.7	....	−4.7
41	77	49.4	+1	−.211	+.25	−.2	+.4	+.4	....	−.2	....	+.4	+.4
84 [a]	77	52.6	+1	−.210	+.13	−4.9	−4.5	−5.7	−4.9	....	−4.5	....	−4.5
47 [a]	77	58.8	+1	−.208	−.34	+1.6	+1.3	+5.6	....	+1.6	....	+1.3	+1.3
46	78	08.4	+1	−.206	−.06	−3.4	−3.2	+1.9	....	−3.4	....	−3.2	−3.2
212 [a]	78	09.8	+1	−.205	+.23	−5.9	−5.4	−6.7	−5.9	....	−5.4	....	−5.4
39	78	11.6	+1	−.205	−.05	+.8	+.8	+.9	+.8	....	+.8	....	+.8
209 [a]	78	12.6	+1	−.204	+.23	−4.7	−4.2	−4.9	−4.7	....	−4.2	....	−4.2
34	78	16.6	+1	−.203	+.03	+.9	+1.1	+.9	+.9	....	+1.1	....	+1.1
217	78	19.4	+1	−.202	+.28	−.5	+.2	−1.1	−.5	....	+.2	....	+.2
116	78	29.8	+1	−.199	+1.10	−.8	+1.3	−.7	....	−.8	....	+1.3	+1.3
135 [a]	78	32.0	+1	−.199	+.13	+1.3	+1.6	+2.2	+1.3	....	+1.6	....	+1.6
23 [a]	78	35.6	+1	−.198	+.20	−.2	+.3	−.3	−.2	....	+.3	....	+.3
114	78	39.2	+1	−.197	+1.75	−1.2	+2.0	−3.7	....	−1.2	....	+2.0	+2.0
125 [a]	78	43.8	+1	−.195	+.42	+.7	+1.5	−.8	+.7	....	+1.5	....	+1.5
20	78	50.0	+1	−.194	+.82	−3.3	−1.8	−5.9	−3.3	....	−1.8	....	−1.8
35	78	57.4	+1	−.192	−.01	.0	+.1	.0	.0	....	+.1	....	+.1
219 [a]	79	17.0	+1	−.186	+.27	+3.5	+4.1	+3.5	+3.5	....	+4.1	....	+4.1
44 [a]	79	21.2	+1	−.185	−.07	+.6	+.8	+2.3	....	+.6	....	+.8	+.8
137	79	31.8	+1	−.182	+.17	−1.2	−.9	−1.2	−1.2	....	−.9	....	−.9
138	79	35.4	+1	−.181	+.03	+.7	+.8	+.3	+.7	....	+.8	....	+.8
48 [a]	79	41.6	+1	−.179	+1.00	−3.2	−1.2	−3.6	....	−3.2	....	−1.2	−1.2
24 [a]	79	54.2	+1	−.175	+.19	−3.5	−3.0	−3.9	−3.5	....	−3.0	....	−3.0
136	79	55.6	+1	−.175	+.12	+.1	+.4	+.3	+.1	....	+.4	....	+.4
207 [a]	80	08.0	+1	−.171	+.20	+1.6	+2.1	+2.4	+1.6	....	+2.1	....	+2.1
210 [a]	80	32.0	+1	−.164	+.22	+1.6	+2.1	+1.9	+1.6	....	+2.1	....	+2.1
25 [a]	80	42.0	+1	−.162	+.19	+.6	+1.1	−.2	+.6	....	+1.1	....	+1.1
211 [a]	80	54.8	+1	−.158	+.22	+1.1	+1.5	+1.5	+1.1	....	+1.5	....	+1.5
26 [a]	81	28.0	+1	−.148	+.23	−3.8	−3.2	−4.0	−3.8	....	−3.2	....	−3.2
208	81	29.2	+1	−.148	+.13	−.2	.0	−.7	−.2	....	.0	....	.0
49	81	32.2	+1	−.147	+.06	−2.1	−1.8	+2.3	....	−2.1	....	−1.8	−1.8
105	81	35.8	+1	−.146	+.30	+.6	+1.3	+.3	+.6	....	+1.3	....	+1.3
27 [a]	81	37.0	+1	−.146	+.24	−3.6	−3.0	−4.1	−3.6	....	−3.0	....	−3.0
126	81	52.0	+1	−.141	+.41	+.5	+1.4	−.6	+.5	....	+1.4	....	+1.4
115	81	56.8	+1	−.140	+.13	−.4	+.1	+.5	....	−.4	....	+.1	+.1
120	82	12.8	+1	−.135	+.14	−.2	.0	+.3	−.2	....	.0	....	.0
83	82	14.8	+1	−.135	+.09	−.5	−.2	−.4	....	−.5	....	−.2	−.2
81	82	36.6	+1	−.129	+1.15	−2.1	+.2	−1.3	....	−2.1	....	+.2	+.2
124	82	44.8	+1	−.126	+.40	+1.6	+2.5	+2.2	+1.6	....	+2.5	....	+2.5
33	83	00.8	+1	−.122	+.08	−.7	−.5	−.5	−.7	....	−.5	....	−.5
82	83	10.2	+1	−.119	+.44	−3.1	−2.1	−2.0	....	−3.1	....	−2.1	−2.1
122	83	15.4	+1	−.117	+.12	−2.2	−1.9	−3.0	−2.2	....	−1.9	....	−1.9
127	83	21.4	+1	−.116	+.50	−.4	+.6	−1.8	−.4	....	+.6	....	+.6
36	83	34.8	+1	−.112	−.10	−.1	−.1	−.8	−.1	....	−.1	....	−.1
37M	83	47.0	+1	−.108	....	....	....	....	....	....	....	....	−5.9
133 [a]	84	07.4	+1	−.102	+.44	+1.3	+2.2	+1.8	+1.3	....	+2.2	....	+2.2
134 [b]	84	15.6	+1	−.100	+.07	+1.7	+1.9	+1.8	+1.7	....	+1.9	....	+1.9
117	84	32.2	+1	−.095	−.11	−4.5	−4.4	−2.8	....	−4.5	....	−4.4	−4.4
28 [a]	84	33.0	+1	−.095	+.38	+.4	+1.2	−.6	+.4	....	+1.2	....	+1.2
18C	84	38.5	+1	−.093	....	....	−2.0	−2.0	....	....	−2.0	....	−2.0
29 [a]	84	43.2	+1	−.092	+.28	−1.9	−1.3	−2.6	−1.9	....	−1.3	....	−1.3
30 [a]	84	45.6	+1	−.091	+.33	−2.0	−1.3	−2.3	−2.0	....	−1.3	....	−1.3
205	84	46.0	+1	−.091	−.03	−1.0	−1.0	−1.5	−1.0	....	−1.0	....	−1.0
32 [a]	84	54.2	+1	−.089	+.21	+1.0	+1.5	+1.0	+1.0	....	+1.5	....	+1.5
119	85	01.6	+1	−.087	−.03	−2.3	−2.3	−2.5	−2.3	....	−2.3	....	−2.3
123 [a]	85	18.2	+1	−.082	+.15	+3.1	+3.5	+4.1	+3.1	....	+3.5	....	+3.5
195	85	40.0	+1	−.076	+.34	−3.5	−2.7	+.1	....	−3.5	....	−2.7	−2.7
206	85	44.6	+1	−.074	+.14	−3.0	−2.6	−3.0	....	−3.0	....	−2.6	−2.6
121	85	56.0	+1	−.071	+.08	−1.2	−1.0	−1.3	−1.2	....	−1.0	....	−1.0
131	86	05.4	+1	−.068	+.35	+1.0	+1.6	+2.3	+1.0	....	+1.6	....	+1.6
37	86	09.2	+1	−.067	+.08	−.5	−.3	−.6	−.5	....	−.3	....	−.3
17 C [a]	86	17.1	+1	−.065	....	....	+.4	+.6	....	....	+.4	....	+.4
[illegible]	86	33.6	+1	−.060	+.17	+1.5	+1.8	+1.1	+1.5	....	+1.8	....	+1.8
[illegible] [a]	86	35.4	+1	−.059	+.07	−6.4	−6.2	−5.0	....	−6.4	....	−6.2	−6.2
88 [c]	86	36.8	+1	−.059	−.10	+.3	+.2	+.4	+.3	....	+.2	....	+.2
130 [a]	87	06.0	+1	−.051	+.14	+2.7	+3.1	+4.3	+2.7	....	+3.1	....	+3.1
[illegible]	87	14.4	+1	−.048	−.34	−1.2	−1.6	+2.6	....	−1.2	....	−1.6	−1.6
60	87	23.6	+1	−.045	−.07	−.7	−.9	−.3	....	−.7	....	−.9	−.9
38 M	87	30.4	+1	−.044	....	....	....	....	....	....	....	....	−6.8
25 C	87	40.2	+1	−.041	....	....	−1.9	−3.3	....	....	−1.9	....	−1.9
16 C [a]	87	45.4	+1	−.039	....	....	+2.6	+3.0	....	....	+2.6	....	+2.6
132 [d]	87	56.6	+1	−.036	+.11	+1.4	+1.7	+1.6	+1.4	....	+1.7	....	+1.7
197	87	57.2	+1	−.036	+.02	−1.5	−1.4	−1.6	−1.5	....	−1.4	....	−1.4

[a] This station is used only with near-by stations to give a single observation equation. See table of groups on p. 119.

[b] Station 134 enters by itself only in solutions 1 and 4; as a part of group 6 C, p. 120, in solutions 2, 3, 6, and 8.

[c] Station 88 enters by itself only in solutions 1 and 4; as a part of group 5 C, p. 120, in solutions 2, 3, 6, and 8.

[d] Station 132 enters solutions 1 and 4 as a part of group 3; solutions 2, 3, 6, and 8 as a part of group 4 C, p. 120.

Observation equations for obtaining corrections to the coefficients of the gravity formula and to the depth of compensation—Con.

Station number	Double latitude 2φ	Coefficient of—			Constant term for solution number—							
		x	y	z	1	2	3	4	5	6	7	8
	° ′											
181	88 06.4	+1	−0.033	+0.02	−2.5	−2.3	−1.7	−2.5	......	−2.3	......	−2.3
201[a]	88 08.4	+1	−.032	−.17	−3.6	−3.8	−2.5	......	−3.6	......	−3.8	−3.8
128	88 12.6	+1	−.031	+.27	+.2	+.7	−.4	+.2	......	+.7	......	+.7
3 C[a]	88 29.2	+1	−.026	......	......	+.4	−.4	......	......	+.4	......	+.4
202	88 31.0	+1	−.026	+.19	−3.4	−2.9	−3.4	......	−3.4	......	−2.9	−2.9
86[a]	88 35.0	+1	−.025	+.72	−2.7	−1.4	−4.6	−2.7	......	−1.4	......	−1.4
196	88 35.6	+1	−.025	+.08	−4.5	−4.4	−4.4	−4.5	......	−4.4	......	−4.4
75[a]	88 42.2	+1	−.023	+.73	−7.3	−6.0	−10.4	......	−7.3	......	−6.0	−6.0
118	88 43.8	+1	−.022	−.19	−1.9	−2.2	−.9	......	−1.9	......	−2.2	−2.2
180	88 47.2	+1	−.021	+.12	+3.2	+3.4	+2.9	+3.2	......	+3.4	......	+3.4
40 M	88 58.4	+1	−.018	......	......	......	......	......	......	......	......	−4.7
129	88 59.0	+1	−.018	+.52	.0	+1.0	+.3	.0	......	+1.0	......	+1.0
52[a]	89 06.8	+1	−.015	+.95	−2.6	−.7	−3.5	......	−2.6	......	−.7	−.7
87[b]	89 20.2	+1	−.012	+.07	−3.1	−2.9	−2.5	−3.1	......	−2.9	......	−2.9
24 C[a]	89 21.6	+1	−.011	......	......	+2.1	+1.3	......	......	+2.1	......	+2.1
50[a]	89 26.6	+1	−.010	+1.21	−2.9	−.6	−4.4	......	−2.9	......	−.6	−.6
51[a]	89 28.4	+1	−.009	+1.05	−4.9	−2.9	−6.0	......	−4.9	......	−2.9	−2.9
177	89 31.6	+1	−.008	.00	−1.0	−.9	−1.1	−1.0	......	−.9	......	−.9
109	89 36.0	+1	−.007	+.18	−4.5	−4.0	−.9	......	−4.5	......	−4.0	−4.0
85[a]	89 38.2	+1	−.006	−.09	−.8	−.9	.0	−.8	......	−.9	......	−.9
179	89 46.4	+1	−.004	+.01	+1.7	+1.7	+1.8	+1.7	......	+1.7	......	+1.7
199	89 51.6	+1	−.002	−.02	−2.5	−2.5	−2.2	−2.5	......	−2.5	......	−2.5
182[a]	89 55.6	+1	−.001	+.08	+4.1	+4.2	+3.6	+4.1	......	+4.2	......	+4.2
74[a]	89 57.4	+1	−.001	−.07	−6.7	−6.7	−6.2	−6.7	......	−6.7	......	−6.7
187[a]	90 02.6	+1	+.001	+.08	−2.4	−2.3	−2.9	......	−2.4	......	−2.3	−2.3
89	90 07.6	+1	+.002	+.07	+.9	+1.2	+1.2	+.9	......	+1.2	......	+1.2
200	90 09.0	+1	+.003	+.02	−1.5	−1.4	−1.7	−1.5	......	−1.4	......	−1.4
31	90 22.4	+1	+.007	+.22	−.4	.0	−1.0	−.4	......	.0	......	.0
19 C	90 32.1	+1	+.009	......	......	−1.4	−3.0	......	......	−1.4	......	−1.4
15 C	90 38.1	+1	+.011	......	......	−1.4	−1.5	......	......	−1.4	......	−1.4
113	90 42.8	+1	+.012	−.08	+2.0	+1.9	+2.6	......	+2.0	......	+1.9	+1.9
23 C[a]	90 43.3	+1	+.013	......	......	−.2	−1.6	......	......	−.2	......	−.2
1 C[a]	90 47.3	+1	+.014	......	......	+1.0	+1.0	......	......	+1.0	......	+1.0
8 C[a]	90 48.9	+1	+.014	......	......	−1.4	−1.7	......	......	−1.4	......	−1.4
186	90 55.0	+1	+.016	−.09	−1.9	−2.0	−1.5	......	−1.9	......	−2.0	−2.0
183[a]	91 04.8	+1	+.019	+.12	+3.8	+4.1	+3.3	+3.8	......	+4.1	......	+4.1
107	91 05.2	+1	+.019	+.27	−3.7	−3.2	−4.2	−3.7	......	−3.2	......	−3.2
184[a]	91 08.0	+1	+.020	+.05	+1.8	+1.9	+1.7	+1.8	......	+1.9	......	+1.9
7 C[a]	91 33.1	+1	+.027	......	......	−1.9	−2.5	......	......	−1.9	......	−1.9
33 M[a]	91 44.2	+1	+.030	......	......	......	......	......	......	......	......	−1.0
194	91 48.0	+1	+.031	−.23	−1.7	−1.9	+.3	......	−1.7	......	−1.9	−1.9
35 M[a]	91 52.6	+1	+.033	......	......	......	......	......	......	......	......	−4.5
11 M[a]	91 58.0	+1	+.034	......	......	......	......	......	......	......	......	−5.3
36 M[a]	91 59.0	+1	+.035	......	......	......	......	......	......	......	......	−5.7
12 M[a]	91 59.2	+1	+.035	......	......	......	......	......	......	......	......	−5.5
13 M[a]	92 03.0	+1	+.036	......	......	......	......	......	......	......	......	−4.4
20 C	92 10.1	+1	+.038	......	......	−.2	−1.6	......	......	−.2	......	−.2
57	92 10.8	+1	+.038	+.32	−5.2	−4.6	−6.0	−5.2	......	−4.6	......	−4.6
22 C	92 16.7	+1	+.040	......	......	+.1	−1.3	......	......	+.1	......	+.1
26 C	92 18.1	+1	+.040	......	......	+1.5	+.7	......	......	+1.5	......	+1.5
80	92 22.6	+1	+.041	+.30	−.1	+.5	−.3	......	−.1	......	+.5	+.5
30 M[a]	92 25.0	+1	+.042	......	......	......	......	......	......	......	......	−.4
18 M[a]	92 26.0	+1	+.042	......	......	......	......	......	......	......	......	−.7
21 C	92 27.8	+1	+.043	......	......	+.8	−.5	......	......	+.8	......	+.8
28 M[a]	92 28.2	+1	+.043	......	......	......	......	......	......	......	......	+.7
110	92 28.4	+1	+.043	+.56	−.5	+.7	+1.4	......	−.5	......	+.7	+.7
32 M[a]	92 29.8	+1	+.044	......	......	......	......	......	......	......	......	−1.4
108	92 34.4	+1	+.045	−.04	−.2	−.2	−.3	−.2	......	−.2	......	−.2
29 M[a]	92 35.2	+1	+.045	......	......	......	......	......	......	......	......	+.2
188	92 36.8	+1	+.046	+.13	−4.6	−4.3	−4.1	......	−4.6	......	−4.3	−4.3
9 C	92 37.4	+1	+.046	......	......	+2.2	+3.5	......	......	+2.2	......	+2.2
34 M[a]	92 38.6	+1	+.046	......	......	......	......	......	......	......	......	−2.0
15 M[a]	92 39.4	+1	+.046	......	......	......	......	......	......	......	......	+.4
178	92 41.6	+1	+.047	+.14	−1.2	−.9	−1.6	−1.2	......	−.9	......	−.9
185	92 42.6	+1	+.047	+.06	−2.2	−2.0	−2.3	−2.2	......	−2.0	......	−2.0
2 C	92 44.9	+1	+.048	......	......	+.2	+.3	......	......	+.2	......	+.2
14 M[a]	92 45.8	+1	+.048	......	......	......	......	......	......	......	......	−1.0
31 M[a]	92 46.4	+1	+.048	......	......	......	......	......	......	......	......	−2.1
8 M[a]	92 48.2	+1	+.049	......	......	......	......	......	......	......	......	−1.9
193	92 48.4	+1	+.049	−.06	−3.8	−3.8	−1.8	......	−3.8	......	−3.8	−3.8
17 M[a]	92 48.4	+1	+.049	......	......	......	......	......	......	......	......	.0
16 M[a]	92 50.4	+1	+.050	......	......	......	......	......	......	......	......	−1.3
7 M[a]	92 52.0	+1	+.050	......	......	......	......	......	......	......	......	−2.6
12 C	93 00.9	+1	+.053	......	......	+1.3	+1.8	......	......	+1.3	......	+1.3
1 M[a]	93 03.6	+1	+.053	......	......	......	......	......	......	......	......	+1.0
2 M[a]	93 04.0	+1	+.054	......	......	......	......	......	......	......	......	+1.4
6 C	93 25.1	+1	+.060	......	......	−.3	−.8	......	......	−.3	......	−.3
203	93 34.0	+1	+.062	+.01	−5.9	−5.8	−4.8	−5.9	......	−5.8	......	−5.8
76	93 37.0	+1	+.063	−.02	−1.0	−1.0	−.5	......	−1.0	......	−1.0	−1.0

[a] This station is used only with near-by stations to give a single observation equation. See table of groups on p. 119.

[b] Station 87 enters solutions 1 and 4 as a part of group 3; solutions 2, 3, 6, and 8 as a part of group 9 C, p. 120.

Observation equations for obtaining corrections to the coefficients of the gravity formula and to the depth of compensation—Con.

Station number	Double latitude 2φ	Coefficient of—			Constant term for solution number—							
		x	y	z	1	2	3	4	5	6	7	8
	° ′											
10 M [a]	94 00.2	+1	+0.070									−3.2
9 M [a]	94 02.8	+1	+ .071									−4.4
112	94 06.8	+1	+ .072	− .15	−3.9	−4.1	− 2.9		−3.9		−4.1	−4.1
106 [b]	94 29.8	+1	+ .078	.00	+ .4	+ .5	+ .4	+ .4		+ .5		+ .5
218	94 31.6	+1	+ .079			−3.9	− 5.9			−3.9		−3.9
27 C [a]	94 44.0	+1	+ .083			+ .3	+ 1.3			+ .3		+ .3
10 C	95 01.1	+1	+ .087			− .6	− .2			− .6		− .6
28 C	95 14.3	+1	+ .091			+1.8	+ 1.8			+1.8		+1.8
111	95 24.8	+1	+ .094	+ .62	+ .8	+2.0	+ 6.7		+ .8		+2.0	+2.0
191	95 32.4	+1	+ .097	− .09	−1.8	−1.9	− 1.3	−1.8		−1.9		−1.9
58	95 37.2	+1	+ .098	+ .22	−3.4	−3.1	− 3.9	−3.4		−3.1		−3.1
13 C	95 40.9	+1	+ .099			−1.2	− 2.4			−1.2		−1.2
192	96 13.6	+1	+ .108	− .07	−2.5	−2.7	− 1.8		−2.5		−2.7	−2.7
5 C	96 16.8	+1	+ .109			− .9	− .5			− .9		− .9
78	96 32.8	+1	+ .114	− .12	−1.0	−1.0	+ 3.4		−1.0		−1.0	−1.0
189	96 40.6	+1	+ .116	− .04	−4.0	−4.0	− 3.6		−4.0		−4.0	−4.0
77	96 47.6	+1	+ .118	− .14	−3.4	−3.7	− 2.0		−3.4		−3.7	−3.7
14 C	96 52.0	+1	+ .120			+3.7	+ 5.1			+3.7		+3.7
4 C	97 01.8	+1	+ .122			+2.0	+ 3.5			+2.0		+2.0
29 C	97 03.1	+1	+ .123			−1.6	− 1.4			−1.6		−1.6
190	97 49.4	+1	+ .136	.00	−2.5	−2.5	− 2.6		−2.5		−2.5	−2.5
59	97 56.2	+1	+ .138	− .13	−2.5	−2.7	− 1.8	−2.5		−2.7		−2.7
11 C	98 07.5	+1	+ .141			+1.4	+ 1.8			+1.4		+1.4
42 C	98 33.6	+1	+ .149			+ .8	+ 5.4				+ .8	+ .8
30 C	99 32.0	+1	+ .166			− .9	− 2.7			− .9		− .9
32 C	99 41.8	+1	+ .168			−1.5	− 1.3				−1.5	−1.5
40 C	99 44.6	+1	+ .169			.0	+12.2				.0	.0
31 C	99 48.8	+1	+ .170			+ .1	− .1			+ .1		+ .1
34 C	100 04.8	+1	+ .175			− .2	.0				− .2	− .2
33 C	100 46.9	+1	+ .187			− .3	− .6				− .3	− .3
39 C	101 21.4	+1	+ .197			+ .1	+ 7.4				+ .1	+ .1
3 M [a]	101 28.4	+1	+ .199									−2.9
4 M [a]	101 31.4	+1	+ .200									−1.9
38 C [a]	101 59.6	+1	+ .208			+3.5	+11.5				+3.5	+3.5
35 C	102 05.4	+1	+ .209			− .4	+ 1.8				− .4	− .4
36 C [a]	102 21.8	+1	+ .214			−1.5	− .3				−1.5	−1.5
41 C [a]	102 31.5	+1	+ .217			−1.0	+ 5.6				−1.0	−1.0
37 C [a]	102 47.4	+1	+ .221			+ .3	+ 6.3				+ .3	+ .3
5 M [a]	103 36.0	+1	+ .235									−5.3
6 M [a]	103 40.0	+1	+ .236									−5.2

[a] This station is used only with near-by stations to give a single observation equation. See table of groups below.
[b] Station 106 enters alone only in solutions 1 and 4; as a part of group 3 C, p. 120, in solutions 2, 3, 6, and 8.

ARRANGEMENT OF GROUPS.

Group number	Including stations	Coefficient of—			Constant term for solution number—							
		x	y	z	1	2	3	4	5	6	7	8
1 In	5 In, 26 In	+1	−0.740									−3.0
2 In	8 In, 39 In, 50 In	+1	− .733									−3.3
3 In	9 In, 99 In	+1	− .718									−3.2
4 In	13 In, 84 In	+1	− .709									−1.2
5 In	65 In, 72 In, 73 In, 106 In	+1	− .705									+1.0
6 In	12 In, 37 In	+1	− .694									−2.2
7 In	20 In, 43 In	+1	− .682									−1.8
8 In	48 In, 59 In, 107 In	+1	− .672									−1.2
9 In	14 In, 55 In, 97 In	+1	− .663									−1.2
10 In	31 In, 45 In	+1	− .659									−3.0
11 In	19 In, 41 In, 96 In	+1	− .656									−1.2
12 In	16 In, 52 In	+1	− .653									−2.2
13 In	15 In, 67 In	+1	− .631									+1.0
14 In	33 In, 42 In, 103 In	+1	− .624									−1.2
15 In	6 In, 78 In	+1	− .620									+3.5
16 In	32 In, 60 In	+1	− .602									+6.4
17 In	40 In, 95 In, 101 In	+1	− .594									+ .2
18	3, 158	+1	− .582	+0.53	−1.4	−0.4	−2.6	−1.4		−0.4		− .4
18 In	1 In, 24 In, 35 In, 77 In	+1	− .581									−1.0
19 In	2 In, 30 In, 51 In	+1	− .552									+ .7
20 In	87 In, 100 In	+1	− .504									+2.4
24	10, 11	+1	− .492	+ .11	− .1	+ .1	+ .3	− .1		+ .1		+ .1
21 In	22 In, 75 In, 89 In, 93 In	+1	− .485									+ .7
20	93, 145	+1	− .462	+ .29	+ .2	+ .7	− .8	+ .2		+ .7		+ .7
17	15, 162	+1	− .398	+ .24	−1.1	− .6	−1.6	−1.1		− .6		− .6
25	13, 143	+1	− .354	.00	−3.2	−3.2	−3.4	−3.2		−3.2		−3.2
23	96, 141	+1	− .342	+ .06	+2.4	+2.6	+2.2	+2.4		+2.6		+2.6
19	14, 166	+1	− .336	+ .16	−1.4	−1.0	−1.4	−1.4		−1.0		−1.0
16	151, 154	+1	− .320	+ .36	− .8	− .2	−1.5	− .8		− .2		− .2
31	68, 69	+1	− .306	+ .64	−1.6	− .4	+2.8		−1.6		−0.4	− .4
14	101, 155	+1	− .302	+ .33	−2.4	−1.8	−2.4	−2.4		−1.8		−1.8

Observation equations for obtaining corrections to the coefficients of the gravity formula and to the depth of compensation—Con.

ARRANGEMENT OF GROUPS—Continued.

Group number	Including stations	Coefficient of—			Constant term for solution number—							
		x	y	z	1	2	3	4	5	6	7	8
15	102, 103, 156	+1	−0.297	+0.85	−1.0	+0.6	−4.6	−1.0		+0.6		+0.6
10	146, 147	+1	− .272	+ .26	−2.2	−1.6	−2.8	−2.2		−1.6		−1.6
33	54, 55	+1	− .256	+1.02	−1.3	+ .5	−7.8		−1.3		+0.5	+ .5
11	172, 175	+1	− .248	+ .50	+1.2	+2.1	+2.0	+1.2		+2.1		+2.1
13	104, 135	+1	− .214	+ .08	+1.4	+1.6	+2.4	+1.4		+1.6		+1.6
9	21, 22, 23, 84, 209, 212, 213, 214	+1	− .208	+ .20	−3.8	−3.4	−4.2	−3.8		−3.4		−3.4
28	42, 43, 44	+1	− .204	+ .73	−2.2	− .7	−6.2		−2.2		− .7	− .7
30	47, 48	+1	− .194	+ .33	− .8	.0	+1.0		− .8		.0	.0
7	24, 125	+1	− .185	+ .30	−1.4	− .8	−2.1	−1.4		− .8		− .8
8	210, 219	+1	− .175	+ .24	+2.6	+3.1	+2.7	+2.6		+3.1		+3.1
12	207, 211	+1	− .164	+ .21	+1.4	+1.8	+2.0	+1.4		+1.8		+1.8
6	25, 26, 27	+1	− .154	+ .21	−1.6	−1.0	−2.1	−1.6		−1.0		−1.0
5	32, 133	+1	− .096	+ .32	+1.2	+1.8	+1.4	+1.2		+1.8		+1.8
1	28, 29, 30	+1	− .093	+ .34	− .8	.0	−1.5	− .8		.0		.0
6C	17C, 134	+1	− .082			+1.1	+1.2			+1.1		+1.1
4	123, 130	+1	− .066	+ .14	+2.9	+3.3	+4.2	+2.9		+3.3		+3.3
5C	16C, 88	+1	− .049			+1.4	+1.7			+1.4		+1.4
27	75, 198	+1	− .041	+ .40	−6.8	−6.1	−7.7		−6.8		−6.1	−6.1
4C	3C, 132	+1	− .031			+1.0	+ .6			+1.0		+1.0
3	87, 132	+1	− .024	+ .09	− .8			− .8				
2	85, 86	+1	− .016	+ .32	−1.8	−1.2	−2.3	−1.8		−1.2		−1.2
26	187, 201	+1	− .016	− .04	−3.0	−3.0	−2.7		−3.0		−3.0	−3.0
29	50, 51, 52	+1	− .011	+1.07	−3.5	−1.4	−4.6		−3.5		−1.4	−1.4
9C	1C, 87	+1	+ .001			−1.0	− .8			−1.0		−1.0
2C	23C, 24C	+1	+ .001			+1.0	− .2			+1.0		+1.0
22	182, 183	+1	+ .009	+ .10	+4.0	+4.2	+3.4	+4.0		+4.2		+4.2
21	74, 184	+1	+ .010	− .01	−2.4	−2.4	−2.2	−2.4		−2.4		−2.4
1C	7C, 8C	+1	+ .020			−1.6	−2.1			−1.6		−1.6
5M	18M, 28M, 31M, 33M, 34M, 35M	+1	+ .039									−1.5
6M	11M, 12M, 13M, 14M, 15M, 16M, 17M, 29M, 30M, 32M, 36M	+1	+ .044									−1.3
1M	1M, 2M	+1	+ .053									+1.2
4M	7M, 8M, 9M, 10M	+1	+ .060									−3.0
3C	27C, 106	+1	+ .080			+ .4	+ .8			+ .4		+ .4
2M	3M, 4M	+1	+ .199									−2.4
8C	38C, 41C	+1	+ .212			+1.2	+8.6				+1.2	+1.2
7C	36C, 37C	+1	+ .218			− .6	+3.0				− .6	− .6
3M	5M, 6M	+1	+ .236									−5.2

The first column of the table on pages 115–119 contains the number of the station. Numbers without any letters appended refer to the United States stations given in the list on pages 50–52; the numbers followed by the letter "C" refer to the Canadian stations on page 54; the numbers followed by the letters "In" refer to the Indian stations given in the list on page 56; and the numbers followed by the letter "M" refer to the stations in the list on page 57.

The data in the above tables come from pages 50–60 and 103–105. All stations having anomalies numerically greater than 0.070 dyne have been excluded. For convenience the unit of n', and therefore of the other quantities involved, has been taken as 0.01 dyne. The unit distance in terms of which z is expressed in these equations is 28.4 km.; that is, the interval between the depths at which the various anomalies for stations in the United States are tabulated on pages 103–105. If the correction for topography and compensation be assumed to change uniformly with changing depth of compensation, that is, if $c=\frac{\partial z}{\partial t}$ is constant, then the value of c, with the units adopted, is the difference between the total corrections for topography and compensation for two depths differing 28.4 km., expressed in units of hundredths of a dyne. An examination of the differences in the table on pages 100–102 will show that these are fairly constant, allowance being made for the effect of omitted decimals. When the observation equations were formed, these quantities carried to one more decimal place than is given on pages 100–102 were available. A specimen of such data is given in connection with station 195, Lander, Wyo., on page 99. From the data for this station the following mean rates of change, in the units adopted, are deduced:

From 42.6 km. to 56.9 km. $=2\,(-3.62+3.70)=+0.16$
From 56.9 km. to 85.3 km. $= -3.28+3.62 =+0.34$
From 85.3 km. to 113.7 km. $= -2.75+3.28 =+0.53$
From 113.7 km. to 127.9 km. $=2\,(-2.48+2.75)=+0.54$
From 127.9 km. to 156.25 km. $= -1.98+2.48 =+0.50$
From 156.25 km. to 184.6 km. $= -1.33+1.98 =+0.65$

A preliminary investigation indicated that the depths of compensation in nearly all solutions would fall between 56.9 km. and 85.3 km., or else very little below 56.9 km. The values of c used in the table of observation equations are therefore the mean rates of change between 56.9 km. and 85.3 km. These c's are to be used only in connection with solutions for which the depth of compensation is determined. In these solutions the constant term, $-n'$, is based on a depth of 56.9 km. In the second solution for mountain stations, in which the resulting depth is 94.9 km., the anomalies for depth 113.7 km. and the corresponding c's were used. These are not shown in the table of observation equations.

In order not to give too great influence to a small region that might contain many gravity stations, the following arbitrary procedure was adopted. A solitary station having no other station within 1 degree of it, either in latitude or longitude, gave a single observation equation of weight unity. If a number of stations occurred so that their latitudes were all within 1 degree of one another, and likewise their longitudes, these stations were made to constitute a group and the mean of the observation equations of the separate stations of the group was taken as the observation equation of the group, with weight unity. In taking this mean for the group, stations within a radius of 8 miles were treated as a single station by taking their mean, and giving the mean only the weight of a single station in averaging it with the other members of the group. An example of this is group 1, which contains stations 28, 29, and 30, which are, respectively, Worcester, Boston, and Cambridge. The mean of the anomalies at Boston and Cambridge is +0.013 dyne and this is given equal weight in combining with the anomaly at Worcester of −0.012 dyne, giving a final mean for the group of 0.000 dyne. In the list of observation equations, stations that are used only as part of a group are designated by a reference mark which refers to a footnote when the details of the grouping require special mention. The latter part of the list of observation equations is made up of the mean equations for the various groups. When the observations were combined into zones of latitude, the mean of a group was given the same weight as a solitary station, the group being assigned to a zone according to the average latitude of its component members.

The normal equations were made up in the usual way. The probable error of z is found in the usual way from the solution of the normal equations. The quantities γ_e, B, and f are functions of x and y. Their probable errors are found by methods given in standard text books on the method of least squares.[*] (See note, p. 98.) These methods all require a knowledge of the numerical values of the derivatives of the functions in question with respect to the unknown quantities of the observation equations.

The formulas (partial derivatives), easily obtained from (4b) and (3) on page 113, and from the definitions of x and y near top of page 114, are

$$\left.\begin{aligned} \frac{\partial\gamma_e}{\partial x}&=+1\\ \frac{\partial\gamma_e}{\partial y}&=-1\\ \frac{\partial\gamma_e}{\partial z}&=0^{\dagger} \end{aligned}\right\} \qquad (8)$$

$$\left.\begin{aligned} \frac{\partial B}{\partial x}&=-\frac{B}{\gamma_e}\\ \frac{\partial B}{\partial y}&=\frac{2+B}{\gamma_e}\\ \frac{\partial B}{\partial z}&=0 \end{aligned}\right\} \qquad (9)$$

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[*] For example, Wright and Hayford, Adjustment of Observations, p. 137, or Helmert, "Die Ausgleichungsrechnung," 2te auflage, p. 180.

[†] x and y are independent of z, according to assumption, and therefore γ_e, which depends only on x and y, is also independent of z; similarly for B and f. As a matter of fact, the redistribution of attracting matter implied in the correction for isostatic compensation will change somewhat the form of the level surfaces and the intensity of gravity. For the earth considered as a whole the change is slight. Prof. de Sitter (in the Koninklijke Akademie van Wetenschappen te Amsterdam, Proceedings of the Section of Sciences, Vol. XVII, pt. 2, p. 1295) makes some approximate mechanical quadratures and concludes that for the geoid as idealized by isostatic compensation to a depth of 114 km. $1/f$ will be 0.14 less than for the actual geoid. The effect on gravity at the equator is to make the idealized gravity greater than the true by less than 0.001 dyne. For smaller changes in depth the effects would be correspondingly less, and the assumptions made are evidently not seriously vitiated.

$$\left.\begin{aligned}
&\frac{\partial m}{\partial x}=-\frac{m}{\gamma_e}\\
&\frac{\partial m}{\partial y}=\frac{m}{\gamma_e}\\
&\frac{\partial f}{\partial m}=\frac{5}{2}-\frac{20}{3}m+\frac{17}{14}B\\
&\frac{\partial f}{\partial B}=-1+\frac{17}{14}m+\frac{2}{21}B\\
&\frac{\partial f}{\partial x}=\frac{\partial f}{\partial m}\frac{\partial m}{\partial x}+\frac{\partial f}{\partial B}\frac{\partial B}{\partial x}\\
&\frac{\partial f}{\partial y}=\frac{\partial f}{\partial m}\frac{\partial m}{\partial y}+\frac{\partial f}{\partial B}\frac{\partial B}{\partial y}\\
&\frac{\partial f}{\partial z}=0
\end{aligned}\right\} \tag{10}$$

These derivatives are so nearly constant that for the purpose in hand they could be computed once for all with average values of the quantities involved.

It will be found that the flattening depends almost wholly on y, for $\frac{\partial f}{\partial y}$ is about -0.0000203 (in the units used in forming the observation equations) as against $\frac{\partial f}{\partial x}=-0.000000034$. A change of unity (i. e., 0.01 dyne) in the value of x will appear only in the third decimal of $1/f$, so if it is desired to hold the flattening unchanged in the determinations it will be sufficient to make $y=0$, or, if some other flattening be fixed on in advance, in the adjustment the corresponding value of y may be determined without regard to the possible change in x. This was done in solutions 1c, 1d, and some others.

In comparing various gravity formulas, which differ among themselves in every term, the most convenient single number to afford a basis of comparison is the mean value of γ_o over the unit sphere. The general expression for this is

$$\text{Mean value}=\gamma_e\left(1+\frac{B}{3}-\frac{2B_4}{15}\right) \tag{11}$$

In the case of the solutions given here this is equivalent to

$$\text{Mean value}=979.75485+x-\tfrac{1}{3}y \tag{12}$$

x and y being expressed in dynes instead of in units of 0.01 dyne, as in the observation and normal equations. The mean values resulting from the various adjustments are given on page 129.

The set of solutions numbered "1" in the preceding table was derived from all stations situated in the United States proper, except No. 218, North Tamarack, Mich., for which the data were not available in time, and stations 53 and 56 in Seattle, Wash., which were excluded because of their large anomalies. In all these stations the constant terms are for depth 56.9 km. and the z's are corrections to that depth. In solution 1a each solitary station and each group of stations is given equal weight. The normal equations are

$$173x-34.572y+42.17z-182.3=0$$

$$-34.572x+13.2991y-11.8632z+26.6250=0$$

$$42.17x-11.8632y+26.3941z-46.181=0$$

From these $x=+1.2934$, $y=+1.7989$, $z=+0.4918$, and the formula for γ_o is

$$\gamma_o=\underset{\pm 5}{978.025}(1+\underset{\pm 11}{0.005339}\sin^2\phi-0.000007\sin^2 2\phi)$$

The depth of compensation is 70.9 ± 10.0 km. and the reciprocal of the flattening is 301.4 ± 1.0.

In solution 1b the stations or groups were assigned to seven zones and each station or group was given a weight inversely proportional to the number of stations and groups in the zone. This process must be substituted for the simpler one of using a mean equation for each zone, which would be practically equivalent if no depth of compensation were to be determined, because the *c*'s, unlike the other coefficients, vary widely within the zone.

The boundaries of the zones are in latitude 31°, 34°, 37°, 40°, 43°, 46°, and 49°, the latter being the northern boundary of the United States. The zones are all three degrees in width, except the southernmost, which extends from station 1 (Key West, Fla.) in latitude 24° 33′.6 to latitude 31° 00′. It was widened in order to include a sufficient number of stations to be representative.

The normal equations are:

$$7x-1.5606y+1.7424z-7.5950=0$$

$$-1.5606x+0.6498y-0.5448z+1.2431=0$$

$$1.7424x-0.5448y+1.0503z-1.8980=0$$

From these $x=+1.3574$, $y=+1.7233$, $z=+0.4490$. The formula for γ_0 is

$$\gamma_0=\underset{\pm 5}{978.026}(1+\underset{\pm 11}{0.005337}\sin^2\phi-0.000007\sin^2 2\phi)$$

The depth of compensation is 69.6 ± 10.4 km. and the reciprocal of the flattening 301.3 ± 1.0.

The flattenings deduced from 1a and 1b are not supported by determinations from other methods, which would indicate that the assumed flattening of 1/298.2 is more nearly correct. It was therefore decided to hold the flattening at this figure. This may be done with sufficient accuracy by letting $y=0$.

Using separate stations and groups, we have for solution 1c, by omitting the second equation in 1a and putting $y=0$ in the others,

$$173x+42.17z-182.3=0$$

$$42.17x+26.3941z-46.181=0$$

From these $x=+1.0274$, $z=+0.1082$, and the formula for γ_0 is

$$\gamma_0=\underset{\pm 1}{978.040}(1+0.005302\sin^2\phi-0.000007\sin^2 2\phi)$$

The depth of compensation is 60.0 ± 9.5 km.

This formula is referred to as the Coast and Geodetic Survey formula of 1916 for the United States.

If the anomalies at stations in the United States were due only to erroneous values of the equatorial gravity and of the depth of compensation used in the computation of the theoretical gravity, then this formula would be perhaps the best obtainable from the data at hand. But, as is shown on page 63, under the heading "Relation between the gravity anomalies and the topography," and on page 70, under the heading "Relation between the gravity anomalies and the geologic formation," the prevailing sign of the anomalies at stations on the seacoast and on Cenozoic formations is evidently due in part to some deviation from the normal of the densities in the strata of the upper crust which is systematic in its nature. The depth computed from the anomalies may be, and probably is, greatly influenced by this systematic effect. It is shown in other parts of this volume that a larger depth than 60 km. is probably nearer the truth. The equatorial value of gravity is not affected materially by the negative anomalies which predominate at the stations near the coast and in Cenozoic formation, as they are offset in great part by the anomalies in other formations which tend to be positive. (See pp. 70 to 78.) The anomalies (called the Hayford 1916 anomalies) based on the Coast and Geodetic Survey formula for 1916 for the

United States are shown in the table on pages 103–106 for purposes of comparison with the anomalies by the 1912 formula of the Coast and Geodetic Survey (called the Hayford 1912 anomalies), which is based on the greater depth of compensation, 113.7 km.

From other data a flattening of 1/297 has been determined. To use this flattening in determining x and z (solution 1d), put $y = -0.642$ in the first and third equations of 1a. The resulting equations are:

$$173x + 42.17z - 160.10 = 0$$

$$42.17x + 26.3941z - 38.565 = 0$$

From these $x = +0.9322$, $z = -0.0286$ and the formula for γ_0 is

$$\gamma_0 = 978.046\ (1 + 0.005289 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$

± 1

and the depth of compensation is 56.1 ± 9.7 km.

In solution 1e the flattening is held at 1/298.2 and the stations are grouped by zones, as in solution 1b.

The normal equations for 1e are:

$$7x + 1.7424z - 7.5950 = 0$$

$$1.7424x + 1.0503z - 1.8980 = 0$$

From these $x = +1.0820$, $z = +0.0122$, and the formula for γ_0 is

$$\gamma_0 = 978.041\ (1 + 0.005302 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$

± 1

The depth of compensation is 57.2 ± 9.8 km.

The solutions numbered 2a and 2b include stations in the United States proper and the Dominion of Canada. No determination of the depth was possible, since no information as to the correction for topography and compensation of the Canadian stations was available for depths other than 113.7 km. In solution 2a each station and each group was given unit weight.

The normal equations for this solution are:[a]

$$208x - 31.281y - 96.1 = 0$$

$$-31.281x + 13.808183y + 3.2079 = 0$$

From these $x = +0.6478$, $y = +1.2351$, and the formula for γ_0 is

$$\gamma_0 = 978.024\ (1 + 0.005327 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$

$\pm 4 \qquad\qquad \pm 9$

The reciprocal of the flattening is 300.4 ± 0.8.

Solution 2b is the same as 2a, except that zones were used as in 1b, though with somewhat different boundaries for the zones.

The normal equations are:

$$7x - 1.32y - 2.676 = 0$$

$$-1.32x + 0.56230y + 0.060917 = 0$$

From these $x = +0.6493$, $y = +1.4158$, and the formula for γ_0 is

$$\gamma_0 = 978.022\ (1 + 0.005331 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$

$\pm 4 \qquad\qquad \pm 9$

The reciprocal of the flattening is 300.7 ± 0.8.

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[a] In forming these normal equations the data used for the stations in Canada were those first communicated to the Survey. Afterwards revised values were sent, which appear in the table of observation equations. The corrections are too slight to affect the result seriously.

In the solutions numbered 3a and 3b the anomalies are found by the free-air method of reduction (correction for elevation, but not for topography and compensation). The stations are the same as those in solutions 2a and 2b. In solution 3a each station and each group is given unit weight, and the resulting normal equations are:[a]

$$208x-31.281y-161.1=0$$

$$-31.281x+13.8082y+52.8456=0$$

From these $x=+0.3018$, $y=-3.1435$, and the resulting formula for γ_0 is

$$\gamma_0=978.064\ (1+0.005238\sin^2\phi-0.000007\sin^2 2\phi)$$
$$\pm 5 \qquad\qquad \pm 12$$

The reciprocal of the flattening is 292.6 ± 1.0.

In solution 3b each zone is given equal weight, the zones being the same as in solution 2b. The normal equations are:

$$7x-1.320y-5.563=0$$

$$-1.320x+0.56230y+1.954694=0$$

From these $x=+0.2498$, $y=-2.8899$, and the formula for γ_0 is

$$\gamma_0=978.061\ (1+0.005243\sin^2\phi-0.000007\sin^2 2\phi)$$
$$\pm 7 \qquad\qquad \pm 17$$

The reciprocal of the flattening is 293.0 ± 1.4.

In order to test the constancy of the depth of compensation in various regions, the stations in the United States lying east of the ninety-eighth meridian were treated separately from those lying west of it. Solutions 4a and 4b are based on those stations east of the ninety-eighth meridian. In solution 4a each station and each group is given unit weight, and a depth of compensation, a value for the flattening, and the equatorial value are determined. The values of $-n'$ are for depth of 56.9 km. The normal equations for 4a are:

$$\begin{aligned}118x-26.723y+26.21z-80.1&=0\\-26.723x+10.265y-8.167z+17.691&=0\\26.21x-8.167y+11.505z-17.241&=0\end{aligned}$$

From these $x=+0.7100$, $y=+0.0698$, $z=-0.0695$, and the formula for γ_0 is

$$\gamma_0=978.036\ (1+0.005303\sin^2\phi-0.000007\sin^2 2\phi)$$
$$\pm 6 \qquad\qquad \pm 14$$

The depth of compensation is 54.9 ± 16.8 km., and the reciprocal of the flattening is 298.3 ± 1.2.

In solution 4b the conditions are the same as for 4a except that the flattening is held as 1/298.2, the value resulting from Helmert's formula of 1901. The normal equations are

$$\begin{aligned}118x+26.21z-80.1&=0\\26.21x+11.505z-17.241&=0\end{aligned}$$

From these $x=+0.7004$, $z=-0.0970$, the formula for γ_0 is

$$\gamma_0=978.037\ (1+0.005302\sin^2\phi-0.000007\sin^2 2\phi)$$
$$\pm 2$$

and the depth of compensation is 54.1 ± 14.9 km.

The solutions numbered 5a and 5b are based on stations in the United States west of the ninety-eighth meridian, treated in a way similar to those used in solutions 4a and 4b. In

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[a] See footnote on p. 124.

solution 5a each station and each group is given unit weight. The values of $-n'$ are for depth 56.9 km. The normal equations are:

$$
\begin{gathered}
55x-7.849y+15.96z-102.2=0\\
-7.849x+3.0345y-3.6967z+8.9343=0\\
15.96x-3.6967y+14.8890z-28.940=0
\end{gathered}
$$

From these $x=+2.2099$, $y=+3.2312$, $z=+0.3772$, and the formula for γ_0 is

$$\gamma_0=\underset{\pm 10}{978.020}\ (1+\underset{\pm 22}{0.005368}\sin^2\phi-0.000007\sin^2 2\phi)$$

The depth of compensation is 67.6 ± 12.9 km., and the reciprocal of the flattening is 304.1 ± 2.0.

In solution 5b the conditions are the same as for 5a except that the flattening is held fixed at 1/298.2. The equations, giving unit weight to each station and group, are

$$
\begin{gathered}
55x+15.96z-102.2=0\\
15.96x+14.8890z-28.940=0
\end{gathered}
$$

From these $x=+1.8784$, $z=-0.0698$, and the value of γ_0 is given by

$$\gamma_0=\underset{\pm 2}{978.049}\ (1+0.005302\sin^2\phi-0.000007\sin^2 2\phi)$$

The depth of compensation is 54.9 ± 12.6 km.

The solutions with separate stations in mountainous regions gave greater depths than other solutions for other groups of stations in the United States, and as it is reasonably certain that the single-station method gives a better value of the depth than the group method, it was decided to make solutions for the stations in the United States west of the ninety-eighth meridian without groups; that is, by the separate-station method. In the first of the two solutions, called 5c, the equatorial gravity, the flattening, and the depth of compensation were determined.

The normal equations are

$$
\begin{gathered}
64x-9.092y+21.92z-127.1=0\\
-9.092x+3.319338y-4.54995z+11.2513=0\\
21.92x-4.54995y+22.6422z-53.946=0
\end{gathered}
$$

From these $x=+2.2016$, $y=+4.1200$, $z=+1.0790$, and γ_0 is given by

$$\gamma_0=\underset{\pm 19}{978.011}\ (1+\underset{\pm 21}{0.005387}\sin^2\phi-0.000007\sin^2 2\phi)$$

The depth of compensation is 87.5 ± 10.6 km. and the reciprocal of the flattening is 305.8 ± 1.9.

In the solution 5d the flattening was held at 1/298.2. The normal equations are:

$$
\begin{gathered}
64x+21.92z-127.1=0\\
21.92x+22.6422z-53.946=0
\end{gathered}
$$

From these $x=+1.7503$, $z=+0.6881$ and γ_0 is given by

$$\gamma_0=\underset{\pm 2}{978.048}\ (1+0.005302\sin^2\phi-0.000007\sin^2 2\phi)$$

The depth of compensation is 76.4 ± 10.8 km.

If the Canadian stations east of the ninety-eighth meridian be joined with those in the United States, no determination of the depth of compensation is possible, since the only depth for which the corrections for topography and isostatic compensation are available for Canadian stations is 113.7 km. In solution 6 this depth is used and each station or group east of the ninety-eighth meridian in Canada or the United States is given unit weight. The normal equations are then [a]

$$
\begin{gathered}
146x-25.174y-35.6=0\\
-25.174x+10.455634y+2.5569=0
\end{gathered}
$$

---

[a] See footnote on p. 124.

From these $x = +0.3448$, $y = +0.5857$, and the formula for γ_0 is

$$\gamma_0 = 978.028\,(1 + 0.005314\,\sin^2\phi - 0.000007\,\sin^2 2\phi)$$
$$\pm 4 \qquad\qquad \pm 11$$

The reciprocal on the flattening is 299.2 ± 1.0.

Solution 7 is based on stations in the United States and Canada west of the ninety-eighth meridian. The depth is fixed at 113.7 km. and each station or group is given equal weight. The normal equations are

$$62x - 6.107y - 59.3 = 0$$
$$-6.107x + 3.352549y + 0.8568 = 0$$

From these $x = +1.1349$, $y = +1.8118$, and the formula for γ_0 is

$$\gamma_0 = 978.023\,(1 + 0.005339\,\sin^2\phi - 0.000007\,\sin^2 2\phi)$$
$$\pm 8 \qquad\qquad \pm 17$$

The reciprocal of the flattening is 301.5 ± 1.5.

The solutions numbered 8a and 8b are based on all available stations in the world between the latitudes of station 179In, Bombay (India) and station 6 M, Scharfenstein (Germany). The only depth of compensation for which data are available is 113.7 km., and this has therefore been held fixed. Stations with an anomaly numerically exceeding 0.070 dyne based on Helmert's formula of 1901 were excluded. It was found that 358 stations could be used. For solution 8a the stations and groups of stations were divided into 11 zones each 3 degrees of latitude in width; the southernmost zone includes Bombay and extends to the twenty-second parallel. The other bounding parallels are the twenty-fifth, twenty-eighth, etc. All stations used in these solutions are in north latitude.

Results for the individual zones.

Zone.	Bounding parellels.	Number of stations or groups.	Mean value of $-\cos 2\phi$	Mean anomaly.	Zone.	Bounding parallels.	Number of stations or groups.	Mean value of $-\cos 2\phi$	Mean anomaly.
	°			*Dynes.*		°			*Dynes.*
1	22	6	−0.748	+0.0212	7	37-40	33	−0.218	−0.0014
2	22-25	14	− .680	+ .0176	8	40-43	27	− .115	+ .0069
3	25-28	13	− .609	− .0062	9	43-46	41	− .017	+ .0099
4	28-31	17	− .510	+ .0048	10	46-49	41	+ .074	+ .0108
5	31-34	21	− .420	− .0009	11	49-52	14	+ .185	+ .0056
6	34-37	25	− .323	+ .0026					

There is a total of 252 separate stations and groups of stations. Each zone was given unit weight. The normal equations that follow from these are

$$11x - 3.381y - 7.09 = 0$$
$$-3.381x + 2.034353y + 2.57810 = 0$$

From these $x = +0.5213$, $y = -0.4008$, and the formula for γ_0 is

$$\gamma_0 = 978.039\,(1 + 0.005294\,\sin^2\phi - 0.000007\,\sin^2 2\phi)$$
$$\pm 4 \qquad\qquad \pm 12$$

The reciprocal of the flattening is 297.4 ± 1.0.

The fact that the mean anomalies for some of the zones are based on comparatively few stations or groups of stations as compared with the other zones suggests that it would be of interest to weight each zone proportionately to the number of stations it contains. This process is (except for probable errors) almost exactly equivalent to that of giving each station and each group unit weight. With weights thus taken, the normal equations for solution 8b, are

$$252x - 52.855y - 149.1 = 0$$
$$-52.855x + 28.027y + 23.9 = 0$$

From these $x = +0.6829$, $y = +0.4352$, and the formula for γ_0 is

$$\gamma_0 = \underset{\pm 4}{978.032}\ (1 + \underset{\pm 11}{0.005311} \sin^2 \phi - 0.000007 \sin^2 2\,\phi)$$

The reciprocal of the flattening is 298.9 ± 1.0.

On pages 63–67 is given a list of anomalies at stations in the United States computed from the United States Coast and Geodetic Survey formula of 1916; that is, for solution 1c. This formula with depth 60.0 km. represents the observations somewhat better than the 1912 formula with depth 113.7 km. except for the 20 stations in mountainous regions above the general level, for which the average anomaly with regard to sign is +0.016 dyne by the 1916 formula. It is therefore natural to inquire what formula and what depth would fit those stations better. The effect of the change of depth on the computed compensation is large for these stations, so that a depth of compensation would be better determined from them than from an equal number of stations elsewhere. However, it seemed to be illogical to take only the stations above the general level and to exclude other stations in the same regions, perhaps within a few miles. Therefore the 36 stations in mountainous regions below the general level (see p. 108) were likewise included in the adjustment. There is no separate column for the constant terms of this solution in the table of observation equations on pages 115 to 120.

This adjustment was made in two ways. First the groups were broken up, each station being taken by itself, and only the 56 stations in mountainous regions were included. Second, where the stations occurred near together groups were used, just as in other cases. These groups included four stations not in mountainous regions.

When the groups were broken up and each station was given unit weight the normal equations for this solution (called 9a) became:

$$\begin{aligned}
&56x - 9.017y + 27.48z - 38.2 = 0\\
&-9.017x + 2.6091714y - 5.18505z + 1.6404 = 0\\
&27.48x - 5.18505y + 18.7226z - 15.279 = 0
\end{aligned}$$

From these $x = +1.3506$, $y = +3.8278$, $z = -0.1061$. The anomalies and the c's in this solution are computed for the depth of 113.7 km. and the z is a correction to that depth. The resulting formula for γ_0 is

$$\gamma_0 = \underset{\pm 14}{978.005}\ (1 + \underset{\pm 31}{0.005380} \sin^2 \phi - 0.000007 \sin^2 2\,\phi)$$

The reciprocal of the flattening is 305.2 ± 2.9 and the depth of compensation is 110.7 ± 20.3 km.

Solution 9b is based on the same data, but the flattening was held fixed at 1/298.2. The normal equations for solution 9b are

$$\begin{aligned}
&56x + 27.48z - 38.2 = 0\\
&27.48x + 18.7226z - 15.279 = 0
\end{aligned}$$

From these $x = +1.0066$ and $y = -0.6613$. The formula for γ_0 is

$$\gamma_0 = \underset{\pm 4}{978.040}\ (1 + 0.005302 \sin^2 \phi - 0.000007 \sin^2 2\,\phi)$$

The depth of compensation is 94.9 ± 19.7 km.

When the usual groups are taken, the normal equations for the solution (called 9c) are

$$\begin{aligned}
&44x - 6.879y + 19.25z - 64.9 = 0\\
&-6.879x + 2.056157y - 4.23457z + 9.057 = 0\\
&19.25x - 4.23457y + 16.2641z - 29.779 = 0
\end{aligned}$$

From these $x = +1.5433$, $y = +1.6542$, $z = +0.4350$. The anomalies and c's in this solution are computed for the depth 56.9 km. and the z is a correction to this depth. The resulting formula for γ_0 is

$$\gamma_0 = 978.029\ (1 + 0.005336 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$

The reciprocal of the flattening is 301.2, and the depth of compensation is 69.3 km.

In solution 9d the flattening is held fixed at 1/298.2 but the remaining conditions are the same as in the solution 9c. The normal equations for solution 9d are

$$44x + 19.25z - 64.9 = 0$$
$$19.25x + 16.2641z - 29.779 = 0$$

From these $x = +1.3977$, and $z = +0.1766$. The resulting formula for γ_0 is

$$\gamma_0 = 978.044\ (1 + 0.005302 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$

and the depth of compensation is 61.9 km.

It is evident that the method of grouping high and low stations in forming the equations destroys the peculiar sensitiveness of the high stations to a change in depth. Therefore the values of the depth by the group solution (9c) should not be considered as having a strong weight as compared with the values of the depth by the single-station solution (9b).

The author believes that the depths derived from the single-station solution for mountainous regions are nearer the truth even for the whole United States than any other depth determined from other groups of gravity stations. (See p. 112.) The solutions of separate stations in the western part of the United States give values for the depth of compensation which are greater than for other solutions except those mentioned above. The stations in the West are, in general, either in mountainous regions or on high plains.

The results of the foregoing solutions are summarized in the following table, which also contains some additional items of information, namely, the mean value of gravity and the probable error of an observation of unit weight. Except in the column for the mean value of gravity and in the lines for solutions 9c and 9d the presence of a value for the probable error of a quantity indicates that the quantity in question was determined by the solution itself, and the absence of a value for the probable error indicates that the quantity was fixed in advance.

Constants of the gravity formulas and related quantities as derived from the various solutions.

Solution No.	Equatorial value of gravity.	Coefficient of $\sin^2\phi$.	Mean value of gravity for the earth.	Reciprocal of flattening.	Depth of compensation.	Probable error of an observation of unit weight.
	Dynes.		*Dynes.*		*Km.*	*Dynes.*
1a	978.025± 4.9	0.005339±11.5	979.762	301.4±1.0	70.9±10.0	±0.0133
1b	978.026± 4.6	.005337±10.7	979.763	301.3±1.0	69.6±10.4	[a]± .0027
1c	978.040± 1.3	.005302	979.765	298.2	60.0± 9.5	± .0135
1d	978.046± 1.3	.005289	979.766	297.0	56.1± 9.7	± .0137
1e	978.041± 1.3	.005302	979.766	298.2	57.2± 9.8	[a]± .0027
2a	978.024± 3.9	.005327± 9.0	979.757	300.4±0.8	113.7	± .0133
2b	978.022± 3.7	.005331± 9.2	979.757	300.7±0.8	113.7	[a]± .0025
3a	978.064± 5.1	.005238±12.0	979.765	292.6±1.0	....	± .0176
3b	978.061± 6.8	.005243±16.6	979.767	293.0±1.4	....	[a]± .0045
4a	978.036± 6.1	.005303±14.1	979.762	298.3±1.2	54.9±16.8	± .0126
4b	978.037± 1.6	.005302	979.762	298.2	54.1±14.9	± .0125
5a	978.020± 9.7	.005368±21.6	979.766	304.1±2.0	67.6±12.9	± .0138
5b	978.049± 2.3	.005302	979.774	298.2	54.9±12.6	± .0142
5c	978.011± 9.5	.005387±21.1	979.763	305.8±1.9	87.5±10.6	± .0141
5d	978.048± 2.3	.005302	979.772	298.2	76.4±10.8	± .0148
6	978.028± 4.5	.005314±10.8	979.756	299.2±1.0	113.7	± .0130
7	978.023± 7.6	.005339±16.8	979.760	301.5±1.5	113.7	± .0136
8a	978.039± 4.3	.005294±11.8	979.761	297.4±1.0	113.7	[a]± .0057
8b	978.032± 4.4	.005311±10.9	979.760	298.9±1.0	113.7	± .0220
9a	978.005±14.4	.005380±31.2	979.756	305.2±2.9	110.7±20.3	± .0156
9b	978.040± 4.0	.005302	979.765	298.2	94.9±19.7	± .0158
9c	978.029	.005336	979.765	301.2	69.3	....
9d	978.044	.005302	979.769	298.2	61.9	....

[a] The observation of unit weight is a zone.

STATEMENT CONCERNING THE VARIOUS SOLUTIONS THE RESULTS OF WHICH ARE GIVEN IN THE ABOVE TABLE.

In the solutions in which separate stations and groups of stations were used, each separate station and each group of stations was given unit weight.

In the solutions in which the stations were taken by zones, each zone was given unit weight, except in solution 8b.

UNITED STATES STATIONS, SOLUTIONS 1a TO 1e.

1a. Separate stations and groups of stations were used in the determination of equatorial gravity, the flattening and the depth of compensation.

1b. Zones were used in the determination of equatorial gravity, the flattening, and the depth of compensation.

1c. Separate stations and groups of stations were used and the flattening was held fixed at 1/298.2 in the determination of equatorial gravity and the depth of compensation.

1d. Separate stations and groups of stations were used and the flattening was held fixed at 1/297 in the determination of equatorial gravity and the depth of compensation.

1e. Zones were used and the flattening was held fixed at 1/298.2 in the determination of equatorial gravity and the depth of compensation.

UNITED STATES AND CANADIAN STATIONS, SOLUTIONS 2a AND 2b.

2a. Separate stations and groups of stations were used and the depth was held fixed at 113.7 km. in the determination of equatorial gravity and the flattening.

2b. Zones were used and the depth was held fixed at 113.7 km. in the determination of equatorial gravity and the flattening.

UNITED STATES AND CANADIAN STATIONS BY THE FREE-AIR METHOD OF REDUCTION, SOLUTIONS 3a AND 3b.

3a. Separate stations and groups of stations were used in the determination of equatorial gravity and the flattening.

3b. Zones were used in the determination of equatorial gravity and the flattening.

UNITED STATES STATIONS EAST OF THE NINETY-EIGHTH MERIDIAN, SOLUTIONS 4a AND 4b.

4a. Separate stations and groups of stations were used in the determination of equatorial gravity, the flattening, and the depth of compensation.

4b. Separate stations and groups of stations were used and the flattening was held fixed at 1/298.2 in the determination of equatorial gravity and the depth of compensation.

UNITED STATES STATIONS WEST OF THE NINETY-EIGHTH MERIDIAN, SOLUTIONS 5a TO 5d.

5a. Separate stations and groups of stations were used in the determination of equatorial gravity, the flattening, and the depth of compensation.

5b. Separate stations and groups of stations were used and the flattening was held fixed at 1/298.2 in the determination of equatorial gravity and the depth of compensation.

5c. Separate stations only were used in the determination of equatorial gravity, the flattening, and the depth of compensation.

5d. Separate stations only were used and the flattening was held fixed at 1/298.2 in the determination of equatorial gravity and the depth of compensation.

UNITED STATES AND CANADIAN STATIONS EAST OF THE NINETY-EIGHTH MERIDIAN, SOLUTION 6.

6. Separate stations and groups of stations were used and the depth was held fixed at 113.7 km. in the determination of equatorial gravity and the flattening.

UNITED STATES AND CANADIAN STATIONS WEST OF THE NINETY-EIGHTH MERIDIAN, SOLUTION 7.

7. Separate stations and groups of stations were used and the depth was held fixed at 113.7 km. in the determination of equatorial gravity and the flattening.

STATIONS IN THE UNITED STATES, CANADA, SWITZERLAND, INDIA, ITALY, GERMANY, AND AUSTRIA, SOLUTIONS 8a AND 8b.

8a. Zones were used, the zones having equal weight, and the depth was held fixed at 113.7 km. in the determination of the equatorial gravity and the flattening.

8b. Zones were used, the zones weighted according to the aggregate number of stations and groups in a zone, and the depth was held fixed at 113.7 km. in the determination of equatorial gravity and the flattening.

UNITED STATES STATIONS IN MOUNTAINOUS REGIONS, SOLUTIONS 9a TO 9d.

9a. Separate stations only were used in the determination of equatorial gravity, the flattening, and the depth of compensation.

9b. Separate stations only were used and the flattening was held fixed at 1/298.2 in the determination of equatorial gravity and the depth of compensation.

9c. Separate stations and groups of stations were used in the determination of equatorial gravity, the flattening, and the depth of compensation.

9d. Separate stations and groups of stations were used and the flattening was held fixed at 1/298.2 in the determination of equatorial gravity and the depth of compensation.

For completeness and for comparison with the above formulas for the intensity of gravity there is given here Helmert's most recent formula.[a] With probable errors attached it reads:

$$g_o = \underset{\pm 3}{978.052}[1 + \underset{\pm 5}{0.005285} \sin^2\phi - 0.000007 \sin^2 2\phi + \underset{\pm 3}{0.000018} \cos^2\phi \cos 2(\lambda + \underset{\pm 4}{17^\circ})]$$

in which ϕ, as usual, is the geographic latitude and λ is the longitude from Greenwich, east longitude being positive. The formula corresponds to a spheroid with three unequal axes, the shorter equatorial axis being in longitude 73° east from Greenwich and the longer, which exceeds the shorter by 230 m., in longitude 17° west of Greenwich. The reciprocal of the mean polar flattening is 296.7 ± 0.4. The mean value of gravity over the sphere is 979.771 dynes. The formula is based upon 410 stations in all parts of the world selected for being neither too near to the coast nor to mountainous regions and upon certain coast stations which were given reduced weight. The coefficient of $\sin^2 2\phi$ is based on theory. (See p. 113.) The coast stations were used in determining all other constants except the first one, which from coast stations alone had the special value of 978.068 dynes. The precise number of coast stations is not given. The formula, when the first coefficient is used as 978.052, represents gravity reduced by the free-air method for stations in the interior and not in mountainous regions. No tests have yet been made to determine how well this formula represents gravity in the United States.

HELMERT'S DEPTH OF COMPENSATION FROM GRAVITY OBSERVATIONS.

Helmert derived a depth of compensation of about 120 km. from data for 51 selected coast stations distributed throughout the earth's surface.[b] He used in his determination the differences between the observed values of gravity reduced to sea level by the free-air method and the values at sea level computed by his 1901 formula. The observed values were in general considerably greater than those computed.

The stations were arranged in several groups, each group containing the stations in some special type of topography, and a depth was derived from the data for each group, namely, that depth for which the correction for topography and isostatic compensation would account for the mean observed free-air anomaly of the group. For group 1 it was 107 km., for group 2 it was 124 km., and for groups 3 and 4 together 123 km.; the mean value was 118 km.

If the free-air method of reduction is used, Helmert's formula of 1901 should represent, on the average, gravity at stations in the interior, not in mountainous regions. But for stations in this class in the United States the average anomaly (free air) is +0.009 dyne. (See p. 67.) If the equatorial constant were increased to 978.039 to represent this class of stations better, the anomalies of the coast stations would be correspondingly reduced and the depths indicated would be: Group 1, 80 km.; group 2, 89 km.; groups 3 and 4 together, 78 km., with a mean of 83 km. Helmert's 1915 formula indicates that gravity in the United States is slightly below normal, for according to the formula minimum gravity occurs in longitude 107° west, and if allowance were made for this the previous correction of +0.009 dyne would be further increased and the resulting depth further diminished. A rough estimate of the effect of using Helmert's 1915 formula may be obtained by noting that according to it

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[a] Sitzungsberichte der Königlich Preussischen Akademie der Wissenschaften, No. 41 (1915), p. 676, entitled "Neue Formeln für den Verlauf der Schwerkraft im Meeresniveau beim Festlande."

[b] Encyclopädie der Mathematischen Wissenschaften Band VI 1B, Heft. 2 Die Schwerkraft und die Massenverteilung der Erde, p. 140.

average gravity over the unit sphere is 0.016 dyne greater than according to his 1901 formula. If the anomalies in each group are diminished by 0.016 dyne, the depths implied are: Group 1, 62 km.; group 2, 64 km.; groups 3 and 4 together, 46 km., making the mean 58 km., which is about the value found by the various solutions for the United States, except the solution from the 56 stations in mountainous regions. This 58 km. by Helmert's method is of course based on anomalies at coast (and probably largely Cenozoic) stations, which, as is indicated in other parts of this volume, are subject to systematic errors due to smaller densities than normal in the upper strata of the earth's crust. While the value of 58 km. agrees well with the depth given for the Coast and Geodetic Survey formula for 1916 for the United States, it should not necessarily be considered as being nearer the truth than the greater depths.

Chapter IX.—SUMMARY.

The group of publications of the Coast and Geodetic Survey dealing with deflections and gravity values shows that isostasy exists in a form nearly perfect in the United States as a whole, also that there is nearly perfect isostasy in areas which form comparatively small percentages of the area of the entire country.

The conclusions which may be drawn from the investigation reported in this volume substantiate to a great extent the conclusions arrived at from previous investigations. This is an important fact, for 70 per cent more gravity stations in the United States were used at this time than in the preceding gravity investigation and many stations in Canada, India, and Europe, for which data were available, were also used.

The depth of compensation was derived from the 216 stations in the United States and was found to be 60 km. When the stations were divided into different groups, other depths were obtained. They agreed in general with the value determined from all of the stations. An exception is in the case of the stations in mountainous regions, 56 in all. The values of the depth of compensation determined from these are 111 km. and 95 km. on two somewhat different assumptions. Owing to the fact that at stations in mountainous regions above the general level the values of gravity are very sensitive to a change in depth, it is believed that the value of the depth determined from the stations in mountainous regions has greater strength than the other values.

The author believes that the best value for the depth of compensation is the mean of the Hayford value[a] of 97 km., which was obtained from deflection data at stations in mountainous regions and the value of 95 km. derived from gravity data at stations in mountainous regions. This mean is **96** km. The author believes that future values of the depth of compensation derived from much more extensive data will fall between 80 and 130 km. (See p. 112 and fig. 8.)

For the United States there was found a decided relation between the sign of the Hayford gravity anomalies and the coast. The reason for this is explained in the following paragraphs. There was no relation found between the sign and the size of the Hayford anomalies and any other class of topography. There were found the usual relations between the elevations of the stations and the gravity anomalies based upon the Bouguer and the free air methods. (See p. 61 and figs. 13 and 14.)

Decided relations were found in the United States and in India between the sign of the gravity anomalies and the Cenozoic geologic formation. The anomalies at stations located on this formation tend to be negative. In the United States a number of the Cenozoic stations are located on or very near the coast. As stated above, there appeared to be a relation between the gravity anomalies and the coast. This is probably explained by the presence of the very light material of the Cenozoic formations, which is present along nearly all the Atlantic and Gulf coasts of the United States. It seems probable that the negative anomalies at Cenozoic stations are in large part due to the presence of subnormal densities in the upper crust below sea level.

There were found decided relations between the pre-Cambrian, Paleozoic, and Mesozoic formations and the sign of the gravity anomalies for the area of the United States. No very definite relations were observed in Canada and in India. (See pp. 70–84.)

It was found as a result of certain computations and investigations that local distribution of the compensation of a topographic feature is in general nearer the truth than regional distribution of the compensation out to the outer limit of zone O (167 km.). It is not clear whether local distribution is more probable than the regional distribution out to the limit of zone M (59 km.). (See pp. 91 and 92.)

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[a] From A Supplemental Investigation in 1909 of the Figure of the Earth and Isostasy.

The difference in the anomalies at two stations which are close together horizontally, but which have a large difference in the elevations, seemed to indicate some error in the height formula used to compute the correction to gravity for the elevation of the station above sea level. A careful study of the matter showed no error in the formula, but it seemed to indicate that the difference in the anomalies could result from the combination of several causes no one of which could alone make the difference. (See pp. 93–96.)

The best formula resulting from this investigation with which to obtain the theoretical value of gravity at any latitude in any part of the world was derived from 216 stations in the United States, 42 in Canada, 73 in India, and 17 in Europe, 348 stations in all. (See solution 8a, p. 127.) For each of these stations the reduction for topography and isostatic compensation had been made by the Hayford method, using the same or very similar tables to those in Special Publication No. 10.

The formula is

$$\gamma_0 = 978.039\ (1 + 0.005294 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$

in which γ_0 is the value of gravity sought and ϕ is the latitude of the station.

The first term of the formula is the theoretical value of gravity at the equator. From the constants of this formula was derived a value for the reciprocal of the flattening of the earth, which is **297.4.** This value of the flattening is very close to other values recently derived from geodetic data in the United States and elsewhere. In the author's opinion it may be considered as at least equal in strength to any other value derived from geodetic data. It is only 0.4 larger than Hayford's best value from deflections, 297.0. It is only 0.8 less than Helmert's value of 1901, and only 0.6 lower than the author's value of 1912. It is only 0.7 larger than Helmert's value of 1915.

The values of the terms in the other gravity formulas and for other depths of compensation are of interest and value as showing how conditions may be different in different parts of the country. The table of values shown on page 129 is remarkable in showing values which are so accordant although derived from data under different conditions and in different areas.

If we assume that all the differences between the observed and computed values of gravity in the United States are due to errors in the assumed equatorial gravity and the depth of compensation, then the most probable gravity formula derived from data in this country alone is

$$\gamma_0 = 978.040\ (1 + 0.005302 \sin^2 \phi - 0.000007 \sin^2 2\phi)$$

and the derived depth of compensation is 60 km. The equatorial value of gravity in this formula agrees well with the world formula. It is from this formula that the 1916 Hayford anomalies were computed.

From the various evidence it may be concluded that the average depth is probably greater than 60 km. As stated above, it is probably not far from being 96 km.

The cause of the greater part of the anomalies is believed to be in general the deviation from normal in the densities in the upper crust probably not far below sea level.

The study of the tables and maps accompanying this volume will convince one that in the regions considered the deviation of the earth's crust from a state of perfect isostasy is slight, even for areas of comparatively small size.

The evidence near Seattle, Wash., Minneapolis, Minn., and Washington, D. C., is conclusive that the cause of an anomaly is not regional in extent. If it were, the anomalies which are close together would not show such changes in sign and size.

A problem presents itself to the geodesists of the world which can be easily solved. It is that each nation reduce its own gravity stations for topography and isostatic compensation by some rational method and publish the results. It will be well if the same system is employed by each nation, and to this end the International Geodetic Association will no doubt gladly lend its aid. If this work were done, the results would be of very great value to many branches of science.

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No claim to exhaustiveness is made for the following list of articles and passages in books and memoirs dealing with isostasy and related subjects. No attempt has been made to cover the more general field of articles treating of the constitution of the interior of the earth.

The arrangement of articles is approximately chronological, according to the date of publication.

There were premonitions of the idea of isostasy long before it was definitely formulated. The French expedition to Peru observed latitudes north and south of Mount Chimborazo, and Bouguer [a] expresses surprise at the small deflection of the vertical produced by the mountain, as compared with what he had been led to expect by his calculations from its size and density. He speculates on the possibility of cavities, but does not elaborate much on the subject. A more modern instance is that of Petit, who found the effect of the attraction of the Pyrenees on the latitude of Toulouse small but opposite in sign to what he had expected.[b] Boscovich,[c] in attempting to explain the phenomena, approaches the modern idea rather more closely. Commenting on Bouguer's result, he expresses the opinion that the mountains are swellings caused by the earth's internal heat. "If this be the case," he says, "*no matter is added there* and the empty space within the vitals compensates all the visible matter that rears itself up into the mountain mass." Probably examples of other premonitions could be gathered, but the subject passes beyond mere speculation only when some attempt is made to get a numerical estimate of the effects involved. Extensive calculation on the subject began with Archdeacon Pratt, whose name therefore heads the list.

The name "isostasy" seems to have been proposed and first used by Maj. C. E. Dutton. (See list for 1889 under his name.) Lowthian Green has been referred to as an early advocate of the idea of isostasy. His book, "Vestiges of the Molten Globe," London, 1873, is not available at this writing and references to it do not make plain whether he used the word "isostasy" or not. In any case Maj. Dutton seems to have coined the word independently.

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[c] Roger Joseph Boscovich, De Litteraria Expeditione per Pontificiam Ditionem, 1750, p. 475; quoted from Todhunter's Mathematical Theories of Attraction and the Figure of the Earth, vol. 1, p.313.

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PART II.—SUMMARIES OF GRAVITY OBSERVATIONS AND DESCRIPTIONS OF STATIONS.

CHAPTER I.—ABSTRACTS OF RESULTS.

In this part of the volume are given the abstracts of the observations made at the base station in the office of the United States Coast and Geodetic Survey at Washington, D. C., and at the field stations in the United States established in 1909 and later years, for which similar data have not already been published in the various reports of the Survey. There are also given the descriptions of all the stations.

An index on page 187 gives the names of the stations and the pages of the various publications in which gravity data may be found.

STANDARDIZATION OF THE PENDULUMS AND METHODS OF OBSERVING USED IN THE FIELD.

As is stated on page 49, the pendulums were standardized at the Washington station before and after a field season or between two seasons which were not long separated in time.

Usually the mean of the two values of the periods of a pendulum determined at the base station before and after a season's field work was used in the determination of the relative intensity of gravity at the field stations. An exception to this general rule occurred when it was found, after the season extending from June to December, 1909, that the periods of the pendulums had been affected between standardizations by a film of foreign substance, which had accumulated on the agate planes of the pendulums. Upon the removal of the film the pendulums resumed nearly their former Washington periods. (See p. 141.)

Beginning with the standardization of the pendulums in 1912, each of the pendulums had its period determined each time by swinging it continuously between consecutive determinations of the chronometer corrections. This plan has been followed since that time, both at the base station and in the field in establishing new stations. The previous custom had been to swing all of the pendulums of a set during the interval between two determinations of the chronometer corrections. It was only occasionally that more than two determinations of the chronometer corrections were made at a station.

Each of the pendulums of a set is now swung for at least 24 hours in three periods of 8 hours each, while previously each pendulum was swung for only 16 hours at a station in two periods of 8 hours each unless unfavorable weather prevented time observations on the stars at the end of the 48-hour period. In the earlier work the variation in the rate of the chronometers would occasionally make a large range in the values of the gravity at a station determined by the separate pendulums, but the mean of all the values was free from the effect of change in rate.

In the present method, where the period of a pendulum is obtained from separate time determinations, the result for any one pendulum is not affected by variation in the rate of the chronometers.

ABSTRACTS OF RESULTS.

In the table on pages 144–176 are given the pendulum observations and reductions for the stations in the United States which were determined in 1909 and later years. Similar data for the stations established before that year are given in other publications of the Survey, which are indicated in the index on page 187. The number of a station is the same as was used in the various tables and the discussion in Part I of this volume. (See especially the table on pp. 50–52.)

The tables need little explanation. Under the heading "Total arc" are given the values of the arc through which the pendulum oscillates at the beginning and at the end of a period which is usually about 8 hours long. The period given has been corrected to reduce to an infinitesimally small arc.

The standard temperature is 15° C., and a correction is applied to the period for any deviation of the observed from the standard temperature. The standard pressure of the air in the pendulum case is 60 mm. of mercury. A correction must also be applied for deviations of the pressure from the standard.

Finally there is the correction for flexure. This is necessary because the force of the pendulum in motion makes a sympathetic swinging of the pendulum case and its support, and this in turn reacts on the pendulum and affects its period. The flexure is determined by means of the interferometer, which is described in Appendix 6 of the Report for 1910. The flexure of the case and its support makes the period too long, and consequently the correction necessary to reduce the period to what it would have been in a rigid structure is negative.

It will be noticed that the period of a pendulum is determined by its comparison with each of two chronometers. This is done to avoid mistakes and to make the effect of accidental errors smaller.

The coincidence interval, as its name suggests, is the time which elapses between two consecutive coincidences between the beat of the chronometer and the swing of the pendulum.

The pendulums were swung in the direct position in all cases, both at the base stations and in the field. This fact is indicated in column 3 of the tables. The pendulums are designated as A4, A5, and A6 in one set and B4, B5, and B6 in the other. The pendulums used are indicated in the second column.

The tables do not state whether there were local time observations or comparisons of the chronometers with the noon signals sent out from the Naval Observatory over the commercial telegraph lines (The Western Union and Postal Telegraph Companies). It is evident, however, from the data in the columns of corrections for rate that there was such a determination between the two swings where a change in the rate corrections occurs. If the rate corrections at a station are the same for each swing, then there were only two determinations of the chronometer corrections at that station, one at the beginning and the other at the end of the entire set of observations, as it is quite unlikely that the computed rates during two intervals between three different time comparisons would come out exactly identical.

During the first season of 1909, the season of 1914, and the first season of 1915 pendulum B4 showed great changes in its period. Careful inspection of the pendulum failed to discover any cause for this. It was finally decided to strengthen by an additional rivet the connection between the stem and the bob; after this was done no further trouble occurred.

There is given below a summary of the periods at the base station of the six United States Coast and Geodetic Survey pendulums. These periods were used in computing the relative intensity of gravity at the field stations.

Summary of periods of pendulums resulting from standardizations at the base station, Coast and Geodetic Survey Office, Washington, D. C.

Date	Mean periods						Observer
	A4	A5	A6	B4	B5	B6	
January, 1909	0.5008393	0.5006615	0.5006240	0.5008091	0.5007230	0.5007031	W. H. Burger
June, 1909	.5008368	.5006612	.5006251	.5008229	.5007212	.5007036	Do.
November, 1909	.5008320	.5006561	.5006208	....	....	....	Do.
December, 1909	.5008362	.5006595	[a].5006248	.5008257	.5007220	.5007040	Do.
Do	.5008363	.5006592	[a].5006234	....	....	....	Do.
May, 1910	.5008353	.5006588	.5006233	....	....	....	Do.
October, 1910	.5008348	.5006602	.5006257	.5008246	.5007220	.5007016	H. D. King.
June, 1911	.5008374	.5006618	[a].5006265	....	....	....	T. L. Warner.
Do	.5008360	.5006622	[a].5006289	....	....	....	Do.
January, 1912	.5008392	.5006635	.5006286	.5008126	.5007232	.5007042	Do.
July, 1914	.5008377	.5006623	[b].5006287	.5008117	.5007225	[b].5007026	C. L. Garner and J. D. Powell.
Do	.5008385	.5006639	[c].5006272	.5008119	.5007228	[c].5007020	Do.
January, 1915	.5008373	.5006629	.5006288	.5008178	.5007210	.5007023	Do.
July, 1915	.5008379	.5006629	.5006278	.5008289	.5007207	.5007013	Do.
January, 1916	.5008392	.5006639	.5006301	.5008292	.5007209	.5007014	Do.
Mean	.5008369	.5006613	.5006262	....	.5007219	.5007026	

[a] The mean was used.

[b] Rate corrections were determined from star observations.

[c] Rate corrections were determined from the noon signals sent by telegraph from the Naval Observatory at Washington, D. C.

During the second season of 1909, mentioned on page 139, in which the periods of the pendulums were affected by films of foreign substance on the agate planes on which the pendulums swing, W. H. Burger established the following stations in the order given. The table shows which stations were reoccupied, the name of the second observer, and the value of gravity adopted.

Number and name of station	Reoccupied in 1910 or 1911 by—	Adopted value of gravity	Number and name of station	Reoccupied in 1910 or 1911 by—	Adopted value of gravity
102. Cloudland, Tenn			88. Wilson, N. Y		
103. Hughes, Tenn	T. L. Warner	979.653	89. Alpena, Mich		
106. Fort Kent, Me			57. Iron River, Mich	H. D. King	980.633
85. North Hero, Vt	H. D. King	980.588	58. Ely, Minn		
86. Lake Placid, N. Y			59. Pembina, N. Dak		
87. Potsdam, N. Y			60. Mitchell, S. Dak		

In order to strengthen the field work, stations Hughes, North Hero, and Iron River were reoccupied as is indicated in the above table. The King and Warner values were adopted for North Hero and Hughes, respectively. The Burger value for Iron River when the November 4 to 10, 1909, Washington periods were used differed only 0.006 from King's value. The mean of the two determinations for that station was adopted. The November 4 to 10, 1909, Washington periods were also used in computing the value of gravity at Ely, Pembina, and Mitchell. (See p. 87 of Special Publication No. 10).

For Cloudland the Washington periods of November 4 to 10, 1909, and Warner's periods at station Hughes were used as standard values. North Hero and Iron River, with their adopted values of gravity, were used as the base stations for Lake Placid, Potsdam, Wilson, and Alpena. Hughes and North Hero, with their adopted values of gravity, were used as bases in determining the value of gravity at Fort Kent.

From July, 1914, until January, 1916, the chronometer corrections at the base stations and at field stations were obtained from comparisons with the noon signals sent over the lines of the Western Union and the Postal Telegraph companies from the Naval Observatory at Washington. At the beginning of each month the corrections to the time as sent out by the observatory were furnished for each day of the preceding month. These corrections were seldom greater than 0.10 second. Before the year 1914 the chronometer rates were determined by the gravity parties from local time observations on the stars with an astronomic transit.

The tests at the base station and at field stations showed that the time by telegraph gave as satisfactory results as the time determined by local astronomic observations. Of course there were errors in the absolute time as received at a field station over the telegraph wires due to the time of transmission, but this error was probably very nearly the same for each day at a station, and the effects on the rate determinations of the chronometers were not appreciable.

In the table on page 141 there are given the results of two standardizations in July, 1914, one with local time and the other with time from the observatory. The two results agree closely.

There are given below the values of the gravity at three stations at which both local and Naval Observatory time was used in rating the chronometers. The values indicate that the observatory time by telegraph is satisfactory.

Name of station	Observer	Date	Time used	Observed gravity
Wilmer, Ala.	H. D. King	1911	Local time	979.346
	C. L. Garner	1914	Noon signals	979.345
Albany, N. Y.	T. L. Warner	1911	Local time	980.343
	C. L. Garner	1914	Noon signals	980.344
Little Rock, Ark.	G. R. Putnam	1896	Local time	979.720
	J. D. Powell	1914	Noon signals	979.728

The use of the observatory time materially lessens the work and the cost of establishing a gravity station.

There is given below a table which shows the chronometer rates at stations near and at others which are distant from Washington. These rates were determined from the comparisons with the Naval Observatory time received by telegraph. The range in the daily rates at the distant stations is about the same as the range for the near ones. As there are two chronometers, it can be seen whether the rates are due to errors in the time signals or to conditions not connected with those signals. For instance, when the rate for one day is considerably lower by both chronometers than for the other two days it is probable that this is due to the time signals. This might be the case for the first 24-hour period at station 194 (Huntley, Mont.). This is also the case for the first interval at station 202 (Moorcroft, Wyo.). Here the error was of such size that the observer swung his pendulums a fourth day. On the other hand, at station 192 (Poplar, Mont.) the third day gives a low rate for one chronometer and a normal rate for the other, and the cause of the variation of the first could not have been an error in the time signals.

The chronometers are subject to the temperature changes which occur in the pendulum room, which no doubt cause variations in the rates, but, as the pendulums are swung almost continuously for the interval between the determinations of the chronometer corrections, no appreciable errors enter into the mean period for a pendulum from the variation in rate.

Chronometer rates.

STATIONS NEAR WASHINGTON (MAXIMUM DISTANCE 800 KM.).

Number and name of station	Date, 1915	Daily rates	
		Chronometer No. 1823	Chronometer No. 1841
		Seconds	*Seconds*
146. Richmond, Va	Feb. 9-10	−3.89	−2.07
	Feb. 10-11	−3.78	−2.07
	Feb. 11-12	−3.99	−2.27
147. Emporia, Va	Feb. 24-25	−2.87	−2.18
	Feb. 25-26	−2.28	−1.82
148. Greenville, N. C	Mar. 9-10	−3.85	−2.82
	Mar. 10-11	....	−2.97
	Mar. 11-12	−3.89	−2.86
149. Wilmington, N. C	Mar. 16-17	−3.81	−2.88
	Mar. 17-18	−3.56	−2.63
	Mar. 18-19	−3.66	−2.63
150. Cheraw, S. C	Mar. 25-26	−3.73	−2.89
	Mar. 26-27	−3.84	−3.15
	Mar. 29-30	−3.46	−2.92
151. Charlotte, N. C	Apr. 5-6	−2.65	−1.87
	Apr. 6-7	−2.64	−2.05
	Apr. 7-8	−2.26	−2.06
154. Winston-Salem, N. C	Apr. 12-13	−3.38	−2.73
	Apr. 13-14	−3.54	−3.10
	Apr. 14-15	−3.55	−2.93
152. Asheville, N. C	Apr. 22-23	−4.02	−3.21
	Apr. 23-24	−4.14	−3.36
	Apr. 24-26	−3.97	−3.32
153. Cleveland, Tenn	Apr. 30-May 1	−3.88	−3.09
	May 1-2	−3.86	−3.04
	May 2-3	−3.75	−3.12
155. Knoxville, Tenn	May 10-12	−3.47	−3.23
	May 12-13	−3.71	−3.40
	May 13-14	−3.45	−3.36
156. Bristol, Va	May 19-20	−3.92	−3.58
	May 20-21	−3.80	−3.61
	May 21-22	−3.56	−3.42
209. Laurel, Md	Nov. 18-19	−2.19	+3.08
	Nov. 19-21	−2.24	+3.45
	Nov. 21-22	−2.34	+3.55
212. Rockville, Md	Nov. 27-28	−1.51	+2.55
	Nov. 28-29	−1.68	+2.35
	Nov. 29-30	−2.20	+2.46
214. Fairfax, Va	Dec. 3-4	+0.27	+3.20
	Dec. 4-5	+0.45	+3.34
	Dec. 5-6	+0.66	+3.40
213. Upper Marlboro, Md	Dec. 11-12	+2.26	+3.41
	Dec. 12-13	+1.52	+3.72
	Dec. 13-14	+1.01	+3.86
	1916.		
219. Hagerstown, Md	Jan. 8-9	−1.92	+3.35
	Jan. 9-10	−1.65	+3.38
	Jan. 10-11	−2.09	+3.57

STATIONS DISTANT FROM WASHINGTON (MAXIMUM DISTANCE 2700 KM.; MINIMUM DISTANCE 1400 KM.).

Number and name of station	Date, 1915	Daily rates	
		Chronometer No. 1828	Chronometer No. 1838
		Seconds	*Seconds*
186. Aberdeen, S. Dak	Aug. 5-6	−2.10	+8.14
	Aug. 6-7	−2.21	+8.26
	Aug. 7-8	−2.14	+8.34
187. Faith, S. Dak	Aug. 12-13	−2.18	+6.62
	Aug. 13-14	−2.24	+7.24
	Aug. 14-15	−1.90	+7.48
189. Towner, N. Dak	Aug. 20-21	−1.61	+7.87
	Aug. 21-23	−1.50	+7.63
	Aug. 23-24	−1.91	+6.22
190. Crosby, N. Dak	Aug. 27-28	−1.94	+3.61
	Aug. 28-29	−1.62	+5.25
	Aug. 29-30	−1.86	+4.97
192. Poplar, Mont	Sept. 2-3	−1.75	+5.74
	Sept. 3-4	−1.37	+5.68
	Sept. 4-5	−1.01	+5.78
188. Marmarth, N. Dak	Sept. 10-12	−0.80	+4.25
	Sept. 12-13	−1.10	+4.99
	Sept. 13-14	−1.12	+5.26
193. Miles City, Mont	Sept. 17-18	−1.01	+1.44
	Sept. 18-19	−1.18	+1.63
	Sept. 19-20	−1.52	+1.29
194. Huntley, Mont	Sept. 22-23	−0.13	+1.08
	Sept. 23-24	−0.39	+1.36
	Sept. 24-25	−0.66	+1.47
195. Lander, Wyo	Sept. 29-30	−2.31	+2.17
	Sept 30-Oct. 1	−2.33	+2.18
	Oct. 1-2	−2.17	+2.13
198. Edgemont, S. Dak	Oct. 5-7	−1.74	+2.18
	Oct. 7-8	−1.83	+2.67
	Oct. 8-9	−2.01	+2.36
202. Moorcroft, Wyo	Oct. 12-13	0.00	+4.12
	Oct. 13-14	−1.40	+2.84
	Oct. 14-15	−0.74	+3.31
	Oct. 15-16	−1.01	+3.26
201. Wasta, S. Dak	Oct. 20-21	−1.00	+2.48
	Oct. 21-22	−1.16	+2.25
	Oct. 22-23	−1.19	+2.08
206. Valentine, Nebr	Oct. 26-27	−1.85	+3.36
	Oct. 27-28	−1.88	+3.26
	Oct. 28-29	−1.91	+3.01
205. Randolph, Nebr	Nov. 2-3	−1.46	+2.13
	Nov. 3-4	−1.62	+2.35
	Nov. 4-5	−1.42	+2.31
208. Leon, Iowa	Nov. 10-11	−3.27	+3.56
	Nov. 11-12	−3.38	+3.56
	Nov. 12-13	−2.95	+3.22

Pendulum observations and reductions.

[Chronometer numbers are shown in boldfaced type, both in box headings and the body of the table.]

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. **1823**	Chronometer No. **1841**	Initial	Final			Chronometer No. **1823**	Chronometer No. **1841**	Arc	Temperature	Pressure	Rate		Flexure	Chronometer No. **1823**	Chronometer No. **1841**	Mean		
																Chronometer No. **1823**	Chronometer No. **1841**						
				1908-9	s.	s.	mm.	mm.	° C.	mm.	s.	s.							s.	s.	s.	*Dynes*	*Dynes*
Washington, D. C., Coast and Geodetic Survey Office, William H. Burger.	1	A4	D	Dec. 8	302.92	300.26	5.1	1.9	13.28	48	0.5008266	0.5008340	− 10	+ 72	+ 14	+ 89	+ 2	− 11	0.5008420	0.5008407	0.5008414	....	
	2	A4	D	Dec. 8	303.75	300.56	4.6	1.6	12.86	50	.5008244	.5008331	− 7	+ 90	+ 13	+ 89	+ 2	− 11	.5008418	.5008418	.5008418	....	
	3	A4	D	Dec. 9	304.17	300.76	5.3	2.1	13.02	51	.5008233	.5008326	− 11	+ 83	+ 11	+ 89	+ 2	− 11	.5008394	.5008400	.5008397	....	
	4	A4	D	Dec. 9	304.06	300.28	5.0	2.0	13.05	52	.5008235	.5008340	− 10	+ 82	+ 10	+ 89	+ 2	− 11	.5008395	.5008413	.5008404	....	
	5	A4	D	Dec. 10	304.34	301.43	4.7	1.6	12.73	53	.5008228	.5008307	− 8	+ 94	+ 9	+ 89	+ 2	− 11	.5008401	.5008393	.5008397	....	
	6	A4	D	Dec. 10	305.57	302.52	5.0	1.5	12.56	54	.5008194	.5008277	− 8	+102	+ 8	+ 89	+ 2	− 11	.5008375	.5008370	.5008372	....	
	7	A4	D	Jan. 1	308.28	304.30	4.7	1.9	11.16	58	.5008123	.5008229	− 9	+161	+ 4	+121	+ 16	− 11	.5008389	.5008390	.5008390	....	
	8	A4	D	Jan. 2	308.04	304.70	4.9	2.0	10.86	59	.5008129	.5008218	− 10	+173	+ 3	+121	+ 16	− 11	.5008405	.5008389	.5008397	....	
	9	A4	D	Jan. 2	306.88	303.20	5.1	1.9	11.11	58	.5008160	.5008259	− 10	+163	+ 4	+121	+ 16	− 56	.5008382	.5008376	.5008379	....	
	10	A4	D	Jan. 2	307.14	303.24	5.1	1.5	10.98	62	.5008153	.5008258	− 8	+168	0	+121	+ 16	− 56	.5008378	.5008378	.5008378	....	
	11	A4	D	Jan. 3	307.25	303.08	5.4	2.4	11.48	56	.5008150	.5008263	− 13	+147	+ 6	+121	+ 16	− 21	.5008390	.5008398	.5008394	....	
	12	A4	D	Jan. 3	308.70	304.58	5.1	1.7	11.06	58	.5008112	.5008222	− 9	+165	+ 4	+121	+ 16	− 21	.5008372	.5008377	.5008374	....	
	13	A5	D	Jan. 15	392.26	386.59	4.8	1.5	10.98	55	.5006382	.5006475	− 8	+168	+ 7	+122	+ 3	− 45	.5006626	.5006600	.5006613	....	
	14	A5	D	Jan. 16	392.64	385.30	5.2	1.7	10.96	56	.5006375	.5006497	− 10	+169	+ 6	+122	+ 3	− 45	.5006617	.5006620	.5006618	....	
	15	A5	D	Jan. 16	394.47	387.68	5.2	1.8	11.03	58	.5006346	.5006457	− 10	+166	+ 4	+122	+ 3	− 16	.5006612	.5006604	.5006608	....	
	16	A5	D	Jan. 16-17	395.97	388.04	5.1	1.6	10.51	60	.5006322	.5006451	− 8	+188	+ 2	+122	+ 3	− 16	.5006610	.5006620	.5006615	....	
	17	A5	D	Jan. 17	393.63	384.88	5.1	1.6	10.57	60	.5006359	.5006504	− 8	+186	+ 2	+122	+ 3	− 50	.5006611	.5006637	.5006624	....	
	18	A5	D	Jan. 17	394.29	385.77	5.0	2.0	10.46	62	.5006348	.5006489	− 10	+190	0	+122	+ 3	− 50	.5006600	.5006622	.5006611	....	
	19	A6	D	Jan. 26-27	412.68	408.02	4.9	1.5	12.92	54	.5006065	.5006135	− 8	+ 87	+ 8	+ 95	+ 29	− 12	.5006235	.5006239	.5006237	....	
	20	A6	D	Jan. 27	411.61	407.43	5.3	1.6	12.86	56	.5006080	.5006143	− 9	+ 90	+ 6	+ 95	+ 29	− 12	.5006250	.5006247	.5006248	....	
	21	A6	D	Jan. 27	411.62	407.94	4.7	1.8	13.12	58	.5006081	.5006136	− 9	+ 79	+ 4	+ 95	+ 29	− 12	.5006238	.5006227	.5006232	....	
	22	A6	D	Jan. 27-28	410.78	406.30	5.0	1.7	13.24	61	.5006095	.5006161	− 8	+ 74	+ 2	+ 95	+ 29	− 12	.5006246	.5006246	.5006246	....	
	23	A6	D	Jan. 28	409.88	405.84	5.5	1.7	13.24	62	.5006106	.5006168	− 9	+ 74	+ 1	+ 95	+ 29	− 12	.5006255	.5006251	.5006253	....	
	24	A6	D	Jan. 28	413.21	407.44	4.8	1.7	13.10	64	.5006058	.5006144	− 7	+ 80	− 1	+ 95	+ 29	− 12	.5006213	.5006233	.5006223	....	
Washington, D. C., Coast and Geodetic Survey Office, William H. Burger.	1	B4	D	Dec. 8	313.41	310.64	4.7	1.6	13.97	55	.5007990	.5008061	− 8	+ 44	+ 8	+ 89	+ 2	− 17	.5008106	.5008090	.5008098	....	
	2	B4	D	Dec. 8	314.30	310.82	4.7	1.5	13.64	55	.5007967	.5008056	− 8	+ 57	+ 8	+ 89	+ 2	− 17	.5008096	.5008098	.5008097	....	
	3	B4	D	Dec. 9	311.62	308.03	5.3	1.8	13.90	59	.5008035	.5008129	− 10	+ 46	+ 4	+ 89	+ 2	− 64	.5008100	.5008107	.5008104	....	
	4	B4	D	Dec. 9	311.97	308.00	5.0	1.2	13.86	62	.5008027	.5008130	− 7	+ 48	+ 1	+ 89	+ 2	− 64	.5008094	.5008110	.5008102	....	
	5	B4	D	Dec. 10	314.12	311.00	4.8	1.3	13.48	64	.5007971	.5008052	− 7	+ 64	− 1	+ 89	+ 2	− 13	.5008103	.5008097	.5008100	....	
	6	B4	D	Dec. 10	315.75	312.48	5.1	1.4	13.24	56	.5007930	.5008014	− 8	+ 74	+ 6	+ 89	+ 2	− 13	.5008078	.5008075	.5008076	....	
	7	B4	D	Jan. 1	319.48	315.14	4.8	1.9	11.95	50	.5007838	.5007946	− 10	+128	+ 12	+121	+ 16	− 12	.5008077	.5008080	.5008078	....	
	8	B4	D	Jan. 2	319.04	315.42	4.9	2.0	11.63	52	.5007848	.5007938	− 10	+141	+ 10	+121	+ 16	− 12	.5008098	.5008083	.5008090	....	
	9	B4	D	Jan. 2	319.58	315.43	4.4	1.9	11.65	54	.5007835	.5007938	− 9	+140	+ 8	+121	+ 16	− 12	.5008083	.5008081	.5008082	....	
	10	B4	D	Jan. 2	319.33	315.03	4.9	2.0	11.72	56	.5007841	.5007948	− 10	+137	+ 6	+121	+ 16	− 12	.5008083	.5008085	.5008084	....	
	11	B4	D	Jan. 3	318.51	314.36	4.8	1.8	11.82	58	.5007862	.5007966	− 9	+133	+ 4	+121	+ 16	− 12	.5008099	.5008098	.5008098	....	
	12	B4	D	Jan. 3	319.11	314.75	5.5	1.7	11.70	60	.5007847	.5007955	− 10	+138	+ 2	+121	+ 16	− 12	.5008086	.5008089	.5008088	....	
	13	B5	D	Jan. 15	357.10	352.42	4.7	1.7	11.79	54	.5007011	.5007104	− 8	+134	+ 8	+122	+ 3	− 12	.5007255	.5007229	.5007242	....	
	14	B5	D	Jan. 16	357.76	351.67	5.2	1.9	11.76	55	.5006998	.5007119	− 11	+136	+ 7	+122	+ 3	− 12	.5007240	.5007242	.5007241	....	
	15	B5	D	Jan. 16	358.92	353.29	4.8	1.8	11.67	56	.5006975	.5007088	− 9	+140	+ 6	+122	+ 3	− 12	.5007222	.5007216	.5007219	....	
	16	B5	D	Jan. 17	359.55	353.06	5.1	1.6	11.34	58	.5006963	.5007091	− 8	+153	+ 5	+122	+ 3	− 12	.5007223	.5007232	.5007228	....	
	17	B5	D	Jan. 17	359.74	352.70	4.9	1.8	11.28	60	.5006959	.5007098	− 9	+156	+ 2	+122	+ 3	− 12	.5007218	.5007238	.5007228	....	
	18	B5	D	Jan. 17	360.00	352.88	5.0	2.3	11.27	61	.5006954	.5007094	− 11	+156	+ 1	+122	+ 3	− 12	.5007210	.5007231	.5007220	....	
	19	B6	D	Jan. 26-27	363.68	360.04	5.2	1.7	13.48	56	.5006883	.5006953	− 10	+ 64	+ 6	+ 95	+ 29	− 12	.5007026	.5007030	.5007028	....	
	20	B6	D	Jan. 27	362.96	359.61	5.3	1.9	13.48	58	.5006897	.5006962	− 11	+ 64	+ 5	+ 95	+ 29	− 12	.5007038	.5007037	.5007038	....	
	21	B6	D	Jan. 27	363.20	360.40	4.8	1.9	13.54	59	.5006893	.5006946	− 10	+ 61	+ 4	+ 95	+ 29	− 12	.5007031	.5007018	.5007024	....	
	22	B6	D	Jan. 27-28	362.90	359.23	5.2	1.9	13.58	61	.5006898	.5006969	− 11	+ 60	+ 2	+ 95	+ 29	− 12	.5007032	.5007037	.5007034	....	
	23	B6	D	Jan. 28	361.91	359.07	4.7	1.7	13.67	62	.5006917	.5006974	− 7	+ 56	+ 1	+ 95	+ 29	− 12	.5007050	.5007041	.5007046	....	
	24	B6	D	Jan. 28	364.16	359.63	5.1	1.7	13.66	64	.5006875	.5006961	− 8	+ 56	− 1	+ 95	+ 29	− 12	.5007005	.5007025	.5007015	....	

No. 2, West Palm Beach, Fla., William H. Burger.	1	B4	D	Feb. 13–14...	230.08	231.58	4.7	1.7	20.50	61	.5010890	.5010819	− 9	−230	+3	−41	− 2	− 9	.5010604	.5010572	.5010588	979.131	979.128 ±0.001
	2	B4	D	Feb. 14......	229.74	230.70	4.4	1.7	20.74	61	.5010906	.5010860	− 8	−241	+3	−41	− 2	− 9	.5010610	.5010603	.5010606	979.128	
	3	B5	D	Feb. 14......	249.64	250.24	5.1	1.8	21.10	59	.5010034	.5010010	− 9	−256	+5	−41	− 2	− 9	.5009724	.5009739	.5009732	979.127	
	4	B5	D	Feb. 14–15...	248.76	249.90	5.0	1.8	21.22	60	.5010070	.5010024	− 9	−261	+4	−41	− 2	− 9	.5009754	.5009747	.5009750	979.121	
	5	B6	D	Feb. 15......	253.62	254.43	5.0	1.7	21.42	60	.5009877	.5009845	− 9	−269	+3	−41	− 2	− 9	.5009552	.5009559	.5009556	979.124	
	6	B6	D	Feb. 15......	253.95	254.54	5.1	2.0	21.75	60	.5009864	.5009841	−10	−283	+4	−41	− 2	− 9	.5009525	.5009541	.5009533	979.133	
No. 3, Punta Gorda, Fla., William H. Burger.	1	B4	D	Feb. 26–27...	233.76	235.78	4.8	1.8	16.97	58	.5010718	.5010626	− 9	− 83	+6	− 9	+ 52	−11	.5010612	.5010581	.5010596	979.131	979.126 ±0.001
	2	B4	D	Feb. 27......	234.62	235.88	5.3	1.6	16.36	58	.5010678	.5010621	− 9	− 57	+6	− 9	+ 52	−11	.5010598	.5010602	.5010600	979.130	
	3	B5	D	Feb. 27......	254.00	255.46	5.4	2.1	17.55	60	.5009862	.5009806	−11	−107	+4	− 9	+ 52	−11	.5009728	.5009733	.5009730	979.129	
	4	B5	D	Feb. 27–28...	252.65	254.81	5.1	1.7	18.07	60	.5009915	.5009831	− 9	−129	+4	− 9	+ 52	−11	.5009761	.5009738	.5009750	979.120	
	5	B6	D	Feb. 28......	258.77	259.85	5.1	1.6	17.48	62	.5009680	.5009639	− 8	−104	+2	− 9	+ 52	−11	.5009550	.5009570	.5009560	979.122	
	6	B6	D	Feb. 28......	258.38	259.26	5.9	2.0	17.91	63	.5009695	.5009662	−13	−122	+1	− 9	+ 52	−11	.5009541	.5009569	.5009555	979.125	
No. 4, Apalachicola, Fla., William H. Burger.	1	B4	D	Mar. 13–14...	240.64	239.43	5.1	1.5	20.88	63	.5010410	.5010464	− 8	−246	+1	+11	− 73	−19	.5010149	.5010119	.5010134	979.312	979.321 ±0.003
	2	B4	D	Mar. 14......	241.74	239.34	5.1	1.6	20.56	63	.5010363	.5010467	− 8	−233	+1	+11	− 73	−19	.5010115	.5010135	.5010125	979.316	
	3	B5	D	Mar. 14......	262.14	259.82	4.8	1.5	21.78	65	.5009555	.5009640	− 8	−284	0	+11	− 73	−19	.5009255	.5009256	.5009256	979.313	
	4	B5	D	Mar. 14–15...	266.07	263.94	5.0	1.7	18.56	63	.5009114	.5009190	− 9	−149	+1	+11	− 73	−19	.5009249	.5009241	.5009245	979.318	
	5	B6	D	Mar. 15......	277.10	274.48	5.0	1.8	14.68	61	.5009038	.5009125	− 9	+ 13	+2	+11	− 73	−19	.5009036	.5009039	.5009038	979.327	
	6	B6	D	Mar. 15......	279.90	276.41	5.3	2.2	13.69	61	.5008948	.5009061	−12	+ 55	+2	+11	− 73	−19	.5008985	.5009014	.5009000	979.341	
No. 6, Rayville, La., William H. Burger.	1	B4	D	Mar. 24–25...	255.00	254.14	4.7	1.6	20.18	59	.5009823	.5009856	− 8	−217	+5	−23	−102	−11	.5009569	.5009523	.5009546	979.542	979.542 ±0.001
	2	B4	D	Mar. 25......	257.02	255.14	4.7	1.5	18.93	59	.5009746	.5009818	− 8	−165	+5	−23	−102	−11	.5009544	.5009537	.5009540	979.544	
	3	B5	D	Mar. 25......	282.97	279.92	5.1	1.6	18.34	65	.5008851	.5008947	− 8	−140	−1	−23	−102	−11	.5008668	.5008685	.5008676	979.541	
	4	B5	D	Mar. 25–26...	282.48	279.94	5.2	1.8	18.09	66	.5008866	.5008946	−10	−129	−2	−23	−102	−11	.5008691	.5008692	.5009692	979.534	
	5	B6	D	Mar. 26......	290.92	287.95	4.5	1.6	16.98	60	.5008608	.5008697	− 7	− 83	+4	−23	−102	−11	.5008488	.5008498	.5008493	979.540	
	6	B6	D	Mar. 26......	291.81	287.88	4.9	1.9	17.18	62	.5008582	.5008700	−10	− 91	+2	−23	−102	−11	.5008449	.5008488	.5008468	979.550	
No. 8, Point Isabel, Tex., William H. Burger.	1	B5	D	Apr. 6–7.....	242.08	239.42	4.9	1.7	26.61	58	.5010349	.5010464	− 9	−486	+7	+16	− 93	−11	.5009866	.5009872	.5009869	979.074	979.076 ±0.002
	2	B5	D	Apr. 7.......	242.04	239.47	5.1	1.7	26.27	58	.5010350	.5010461	− 9	−472	+7	+16	− 93	−11	.5009881	.5009883	.5009882	979.069	
	3	B6	D	Apr. 7.......	246.88	244.20	4.9	1.7	26.32	65	.5010147	.5010258	− 9	−474	+1	+16	− 93	−11	.5009670	.5009672	.5009671	979.079	
	4	B6	D	Apr. 7–8.....	246.56	244.01	5.1	1.8	26.42	66	.5010161	.5010267	− 9	−478	0	+16	− 93	−11	.5009679	.5009676	.5009678	979.077	
	5	B4	D	Apr. 8.......	220.47	218.38	5.0	2.0	25.67	61	.5011366	.5011474	−10	−447	+4	+16	− 93	−11	.5010918	.5010917	.5010918	979.060	
	6	B4	D	Apr. 8.......	222.10	220.08	4.9	0.7	24.58	62	.5011282	.5011385	− 5	−401	+3	+16	− 93	−11	.5010884	.5010878	.5010881	979.074	
	7	B4	D	Apr. 8–9.....	222.89	221.02	4.9	1.8	22.89	62	.5011242	.5011337	− 9	−331	+3	+16	− 93	−11	.5010910	.5010896	.5010903	979.067	
	8	B4	D	Apr. 9.......	255.34	223.21	4.5	1.2	20.53	60	.5011119	.5011226	− 6	−232	+4	+16	− 93	−11	.5010890	.5010888	.5010889	979.071	
	9	B6	D	Apr. 9.......	255.18	252.40	5.0	1.2	19.21	64	.5009817	.5009925	− 7	−176	0	+16	− 93	−11	.5009639	.5009638	.5009638	979.093	
	10	B6	D	Apr. 9–10....	255.98	253.28	5.3	1.8	17.87	65	.5009786	.5009890	−10	−120	0	+16	− 93	−11	.5009661	.5009656	.5009658	979.084	
	11	B5	D	Apr. 10......	252.42	249.77	4.9	1.9	16.99	61	.5009924	.5010029	−10	− 83	+3	+16	− 93	−11	.5009839	.5009835	.5009837	979.087	
	12	B5	D	Apr. 10......	253.05	250.04	4.6	1.2	17.16	61	.5009899	.5010018	− 6	− 91	+3	+16	− 93	−11	.5009810	.5009820	.5009815	979.095	
	13	B4	D	Apr. 10–11...	226.78	224.67	5.4	1.3	18.29	61	.5011048	.5011152	− 8	−138	+3	+16	− 93	−11	.5010910	.5010905	.5010908	979.064	
	14	B4	D	Apr. 11......	225.85	223.60	4.9	1.9	19.06	62	.5011094	.5011206	−10	−170	+2	+16	− 93	−11	.5010921	.5010924	.5010922	979.058	
	15	B5	D	Apr. 11......	248.44	245.53	4.9	2.1	20.48	62	.5010083	.5010203	−10	−230	+2	+16	− 93	−11	.5009850	.5009861	.5009856	979.079	
No. 12, McAlester, Okla., William H. Burger.	1	A4	D	Apr. 21–22...	255.45	253.96	5.4	1.9	18.93	55	.5009806	.5009864	−11	−165	+9	−19	−101	−12	.5009608	.5009584	.5009596	979.635	979.632 ±0.003
	2	A4	D	Apr. 22......	257.49	255.02	5.1	1.7	17.82	55	.5009728	.5009822	− 9	−118	+8	−19	−101	−12	.5009578	.5009590	.5009584	979.640	
	3	A5	D	Apr. 22......	314.66	310.22	4.9	1.7	17.89	62	.5007958	.5008072	− 9	−121	+2	−19	−101	−12	.5007799	.5007831	.5007815	979.641	
	4	A5	D	Apr. 22–23...	314.92	310.67	5.2	1.5	17.24	67	.5007951	.5008060	− 9	− 94	−3	−19	−101	−12	.5007814	.5007841	.5007828	979.636	
	5	A6	D	Apr. 23......	327.78	325.33	5.3	2.0	16.96	60	.5007639	.5007697	−11	− 82	+4	−19	−101	−12	.5007519	.5007495	.5007507	979.617	
	6	A6	D	Apr. 23......	326.50	324.28	4.9	1.9	17.80	63	.5007670	.5007721	−10	−117	+1	−19	−101	−12	.5007513	.5007482	.5007498	979.621	
No. 14. Columbia, Tenn., William H. Burger.	1	A5	D	May 3–4.....	332.14	329.50	5.1	1.3	15.18	59	.5007538	.5007599	− 8	− 8	+4	+21	− 68	−16	.5007531	.5007503	.5007517	979.757	979.758 ±0.002
	2	A5	D	May 4.......	333.44	329.46	5.0	1.7	14.85	59	.5007509	.5007600	− 9	+ 6	+4	+21	− 68	−16	.5007515	.5007517	.5007516	979.758	
	3	A6	D	May 4.......	318.28	343.34	4.8	1.7	16.20	63	.5007188	.5007292	− 9	− 50	+1	+21	− 68	−16	.5007135	.5007150	.5007142	979.759	
	4	A6	D	May 4–5.....	317.94	313.48	5.0	1.8	15.87	64	.5007196	.5007289	− 9	− 36	−1	+21	− 68	−16	.5007155	.5007159	.5007157	979.754	
	5	A4	D	May 5.......	269.04	266.80	5.1	1.8	15.57	64	.5009310	.5009388	− 9	− 24	−1	+21	− 68	−16	.5009281	.5009270	.5009276	979.760	
	6	A4	D	May 5.......	268.34	265.22	4.8	1.8	16.56	66	.5009334	.5009444	− 9	− 65	−2	+21	− 68	−16	.5009263	.5009284	.5009274	979.761	
No. 16, McCormick, S. C., William H. Burger.	1	A4	D	May 12–13...	253.18	253.02	5.2	1.8	19.88	63	.5009894	.5009901	−10	−205	0	−36	− 60	−21	.5009622	.5009605	.5009614	979.629	979.623 ±0.002
	2	A4	D	May 13......	254.70	254.09	5.4	1.7	19.09	70	.5009835	.5009858	−10	−171	−5	−36	− 60	−21	.5009592	.5009591	.5009592	979.637	
	3	A5	D	May 13......	307.03	306.53	4.8	1.8	20.35	56	.5008156	.5008169	− 9	−224	+7	−36	− 60	−21	.5007873	.5007862	.5007868	979.620	
	4	A5	D	May 13–14...	306.46	305.59	4.8	1.8	20.56	58	.5008171	.5008194	− 9	−233	+6	−36	− 60	−21	.5007878	.5007877	.5007878	979.616	
	5	A6	D	May 14......	321.78	320.21	4.8	1.7	19.99	59	.5007781	.5007820	− 9	−209	+5	−36	− 60	−21	.5007511	.5007526	.5007518	979.612	
	6	A6	D	May 14......	320.16	319.35	4.8	1.7	21.24	61	.5007821	.5007841	− 9	−261	+3	−36	− 60	−21	.5007497	.5007493	.5007495	979.622	
No. 18. Beaufort, N. C., William H. Burger.	1	A4	D	May 24–25...	266.48	262.12	4.7	2.0	16.96	56	.5009399	.5009556	− 9	− 82	+7	+27	−126	−18	.5009324	.5009328	.5009326	979.741	979.728 ±0.003
	2	A4	D	May 25......	265.58	260.88	4.9	1.5	17.38	57	.5009431	.5009602	− 8	−100	+6	+27	−126	−18	.5009338	.5009356	.5009347	979.733	
	3	A5	D	May 25......	325.50	318.81	5.0	1.8	18.12	59	.5007692	.5007854	− 9	−131	+5	+27	−126	−18	.5007566	.5007575	.5007570	979.737	
	4	A5	D	May 25–26...	323.15	317.39	4.9	1.8	18.50	61	.5007748	.5007889	− 9	−146	+4	+27	−126	−18	.5007606	.5007594	.5007600	979.725	
	5	A6	D	May 26......	336.83	330.98	4.9	1.4	19.05	59	.5007432	.5007565	− 8	−170	+5	+27	−126	−18	.5007268	.5007248	.5007258	979.715	
	6	A6	D	May 26......	336.48	329.26	4.7	1.8	19.66	61	.5007441	.5007604	− 9	−195	+3	+27	−126	−18	.5007249	.5007259	.5007254	979.716	

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1823	Chronometer No. 1841	Initial	Final			Chronometer No. 1823	Chronometer No. 1841	Arc	Temperature	Pressure	Rate		Flexure	Chronometer No. 1823	Chronometer No. 1841	Mean		
																Chronometer No. 1823	Chronometer No. 1841						
				1909	*s.*	*s.*	*mm.*	*mm.*	° *C.*	*mm.*	*s.*	*s.*							*s.*	*s.*	*s.*	*Dynes*	*Dynes*
Washington, D. C., Coast and Geodetic Survey Office, William H. Burger.	1	A4	D	June 6–7	290.71	286.08	5.0	1.6	20.53	61	0.5008615	0.5008755	− 8	−232	+3	+ 8	−155	−17	0.5008369	0.5008346	0.5008357	....	
	2	A4	D	June 7	290.18	285.52	4.9	1.6	20.55	62	.5008631	.5008771	− 8	−233	+2	+ 8	−155	−17	.5008383	.5008360	.5008372	....	
	11	A4	D	June 10	291.66	285.66	4.9	1.9	19.91	58	.5008586	.5008767	−10	−206	+6	+ 8	−155	−17	.5008367	.5008385	.5008376	....	
	12	A4	D	June 10	292.42	286.14	4.9	1.8	19.71	59	.5008564	.5008753	− 9	−197	+5	+ 8	−155	−17	.5008354	.5008380	.5008367	....	
	13	A4	D	June 10	291.73	286.31	4.9	3.5	19.69	60	.5008584	.5008747	−16	−197	+4	+ 8	−155	−17	.5008366	.5008366	.5008366	....	
	3	A5	D	June 7	365.54	357.68	4.9	1.6	20.48	58	.5006848	.5006999	− 8	−230	+6	+ 8	−155	−17	.5006607	.5006595	.5006601	....	
	4	A5	D	June 7–8	365.22	357.32	4.9	1.8	20.45	60	.5006855	.5007007	− 9	−228	+4	+ 8	−155	−17	.5006613	.5006602	.5006607	....	
	9	A5	D	June 9	366.66	357.25	4.9	1.6	20.18	60	.5006828	.5007008	− 8	−217	+4	+ 8	−155	−17	.5006598	.5006615	.5006606	....	
	10	A5	D	June 9–10	365.24	355.94	5.1	1.8	20.09	62	.5006854	.5007033	− 9	−213	+2	+ 8	−155	−17	.5006625	.5006641	.5006633	....	
	5	A6	D	June 8	384.13	376.48	5.0	1.9	20.53	59	.5006517	.5006619	−10	−232	+5	+ 8	−155	−17	.5006271	.5006240	.5006256	....	
	6	A6	D	June 8	386.79	376.52	4.8	1.6	20.40	62	.5006472	.5006649	− 8	−226	+2	+ 8	−155	−17	.5006231	.5006245	.5006238	....	
	7	A6	D	June 8–9	385.52	376.34	4.9	1.8	20.31	64	.5006494	.5006652	− 9	−222	0	+ 8	−155	−17	.5006254	.5006249	.5006252	....	
	8	A6	D	June 9	386.23	375.94	5.2	1.8	20.23	57	.5006481	.5006659	−10	−219	+8	+ 8	−155	−17	.5006251	.5006266	.5006258	....	
Washington, D. C., Coast and Geodetic Survey Office, William H. Burger.	1	B4	D	June 15–16	295.28	290.34	5.2	1.6	20.55	59	.5008481	.5008626	− 8	−233	+5	+11	−152	−11	.5008245	.5008227	.5008236	....	
	2	B4	D	June 16	294.78	289.97	5.0	1.8	20.48	59	.5008496	.5008637	− 9	−230	+5	+11	−152	−11	.5008262	.5008240	.5008251	....	
	9	B4	D	June 18	296.88	291.08	4.6	1.7	20.60	59	.5008435	.5008604	− 8	−235	+5	+11	−152	−11	.5008197	.5008203	.5008200	....	
	3	B5	D	June 16	336.81	329.93	4.9	1.7	20.41	60	.5007434	.5007589	− 9	−227	+4	+11	−152	−11	.5007202	.5007194	.5007198	....	
	4	B5	D	June 16–17	335.50	328.83	5.1	1.8	20.40	60	.5007463	.5007614	− 9	−226	+4	+11	−152	−11	.5007232	.5007220	.5007226	....	
	5	B6	D	June 17	344.00	335.98	5.1	1.7	20.53	60	.5007278	.5007452	− 9	−232	+4	+11	−152	−11	.5007041	.5007052	.5007046	....	
	6	B6	D	June 17	345.58	336.78	4.8	1.6	20.56	61	.5007245	.5007435	− 9	−233	+3	+11	−152	−11	.5007006	.5007033	.5007020	....	
	7	B6	D	June 17–18	344.60	335.96	5.0	1.8	20.53	62	.5007265	.5007453	− 9	−232	+2	+11	−152	−11	.5007026	.5007051	.5007038	....	
	8	B6	D	June 18	344.06	336.23	5.1	1.6	20.55	62	.5007277	.5007445	− 9	−233	+2	+11	−152	−11	.5007037	.5007042	.5007040	....	
No. 102. Cloudland, Tenn., William H. Burger.	1	A4	D	July 2–3	215.22	239.66	4.7	1.1	14.66	59	.5010216	.5010454	− 6	+ 14	+4	+53	−181	−17	.5010264	.5010268	.5010266	979.364	979.382 ±0.006
	2	A4	D	July 3	216.18	240.14	4.7	1.2	14.26	59	.5010173	.5010432	− 7	+ 31	+4	+53	−181	−17	.5010237	.5010262	.5010249	979.370	
	3	A5	D	July 3	296.33	288.35	4.8	1.6	14.65	60	.5008151	.5008385	− 8	+ 15	+3	+53	−181	−17	.5008197	.5008197	.5008197	979.371	
	4	A5	D	July 3–4	297.22	289.08	4.7	1.3	13.84	61	.5008425	.5008663	− 7	+ 49	+2	+53	−181	−17	.5008505	.5008509	.5008507	979.367	
	5	A6	D	July 4	319.78	310.74	4.7	1.5	10.59	57	.5007830	.5008058	− 8	+185	+5	+53	−181	−17	.5008048	.5008042	.5008045	979.409	
	6	A6	D	July 4	321.32	313.00	4.7	1.8	9.31	58	.5007792	.5008000	− 9	+238	+4	+53	−181	−17	.5008061	.5008035	.5008048	979.408	
No. 103. Hughes, Tenn., William H. Burger.	1	A4	D	July 10–11	250.46	244.34	5.1	1.9	20.03	55	.5010002	.5010252	−10	−211	+9	− 4	−229	−22	.5009764	.5009789	.5009776	979.560	979.556 ±0.002
	2	A4	D	July 11	250.78	244.94	5.1	1.7	19.75	57	.5009988	.5010227	− 9	−199	+8	− 4	−229	−22	.5009762	.5009776	.5009769	979.563	
	3	A6	D	July 11	317.13	308.74	4.7	1.5	19.75	59	.5007895	.5008111	− 8	−199	+6	− 4	−229	−22	.5007668	.5007659	.5007664	979.558	
	4	A6	D	July 11–12	315.34	307.88	5.0	1.7	19.75	60	.5007941	.5008133	− 9	−199	+4	− 4	−229	−22	.5007711	.5007678	.5007694	979.546	
	5	A5	D	July 12	302.39	294.60	5.0	1.9	19.78	61	.5008281	.5008500	−10	−200	+3	− 4	−229	−22	.5008018	.5008012	.5008015	979.550	
	6	A5	D	July 12	303.56	295.17	5.1	1.5	19.93	63	.5008249	.5008484	− 8	−207	+1	− 4	−229	−22	.5008009	.5008019	.5008014	979.562	
No. 106. Fort Kent, Me., William H. Burger.	1	A4	D	July 21–22	378.66	370.06	5.2	1.6	15.02	55	.5006611	.5006765	− 9	− 1	+ 8	+ 49	−130	−14	.5006644	.5006619	.5006631	980.772	980.764 ±0.001
	2	A4	D	July 22	378.82	368.77	4.8	1.6	14.72	56	.5006609	.5006789	− 8	+ 12	+ 7	+ 49	−130	−14	.5006655	.5006656	.5006656	980.763	
	3	A5	D	July 22	513.08	495.04	5.1	1.8	15.20	58	.5004877	.5005056	− 9	− 8	+ 5	+ 49	−130	−14	.5004900	.5004900	.5004900	980.764	
	4	A5	D	July 22–23	510.20	491.42	5.2	1.8	15.49	59	.5004905	.5005093	−10	− 21	+ 4	+ 49	−130	−14	.5004913	.5004922	.5004918	980.757	
	5	A6	D	July 23	554.08	532.06	5.2	1.8	14.95	57	.5004517	.5004704	−10	+ 2	+ 6	+ 49	−130	−14	.5004550	.5004558	.5004554	980.765	
	6	A6	D	July 23	553.87	531.70	5.2	1.8	14.94	58	.5004519	.5004707	−10	+ 3	+ 5	+ 49	−130	−14	.5004552	.5004561	.5004556	980.764	
No. 85. North Hero, Vt., William H. Burger.	1	A4	D	July 31–Aug. 1.	349.42	343.60	5.1	1.3	17.59	58	.5007165	.5007286	− 8	−109	+ 6	+ 52	− 98	−15	.5007091	.5007062	.5007076	980.597	980.595 ±0.002
	2	A4	D	Aug. 1	350.53	343.94	5.2	1.2	17.05	58	.5007143	.5007280	− 8	− 86	+ 6	+ 52	− 98	−15	.5007092	.5007079	.5007086	980.593	
	3	A5	D	Aug. 1	468.14	454.60	5.2	1.5	16.88	63	.5005346	.5005506	− 9	− 79	+ 1	+ 52	− 98	−15	.5005296	.5005306	.5005301	980.604	
	4	A5	D	Aug. 1–2	465.02	453.11	5.1	1.5	16.98	57	.5005382	.5005524	− 8	− 83	+ 6	+ 52	− 98	−15	.5005334	.5005326	.5005330	980.593	
	5	A6	D	Aug. 2	496.74	482.75	5.3	1.7	16.68	60	.5005038	.5005184	−10	− 70	+ 4	+ 52	− 98	−15	.5004999	.5004995	.5004997	980.585	
	6	A6	D	Aug. 2	501.95	481.99	5.2	1.7	16.78	61	.5004985	.5005192	−10	− 75	+ 3	+ 52	− 98	−15	.5004940	.5004997	.5004968	980.597	

No. 86. Lake Placid, N. Y., William H. Burger.	1	A4	D	Aug. 11-12..	332.64	324.83	5.1	1.2	15.77	56	.5007527	.5007708	− 7	− 32	+ 7	+ 24	−164	−12	.5007507	.5007500	.5007504	980.425
	2	A4	D	Aug. 12.....	332.96	325.00	5.2	1.4	15.54	56	.5007520	.5007704	− 9	− 23	+ 7	+ 24	−164	−12	.5007507	.5007503	.5007505	980.425
	3	A5	D	Aug. 12.....	433.78	420.20	5.3	1.6	15.72	60	.5005770	.5005957	− 9	− 30	+ 3	+ 24	−164	−12	.5005746	.5005745	.5005746	980.420
	4	A5	D	Aug. 12-13..	431.04	417.45	5.2	1.6	16.08	61	.5005807	.5005996	− 9	− 45	+ 2	+ 24	−164	−12	.5005767	.5005768	.5005768	980.412
	5	A6	D	Aug. 13.....	457.04	441.11	5.4	1.7	16.40	60	.5005476	.5005674	−10	− 59	+ 3	+ 24	−164	−12	.5005422	.5005432	.5005427	980.416
	6	A6	D	Aug. 13.....	458.15	440.82	5.3	1.4	16.65	61	.5005462	.5005678	− 9	− 69	+ 2	+ 24	−164	−12	.5005398	.5005426	.5005412	980.421
																					980.420 ±0.001
No. 87. Potsdam, N. Y., William H. Burger.	1	A4	D	Aug. 19-20..	345.02	337.43	5.1	1.0	18.60	59	.5007257	.5007420	− 7	−151	+ 5	+ 16	−155	−14	.5007106	.5007098	.5007102	980.582
	2	A4	D	Aug. 20.....	345.12	336.65	5.3	1.2	18.52	60	.5007255	.5007437	− 8	−147	+ 4	+ 16	−155	−14	.5007106	.5007117	.5007112	980.579
	3	A5	D	Aug. 20.....	452.54	438.62	4.8	1.4	18.55	61	.5005531	.5005706	− 8	−149	+ 3	+ 16	−155	−14	.5005379	.5005383	.5005381	980.563
	4	A5	D	Aug. 20-21..	453.00	438.88	5.2	1.5	18.33	63	.5005525	.5005703	− 9	−140	+ 1	+ 16	−155	−14	.5005379	.5005386	.5005382	980.563
	5	A6	D	Aug. 21.....	481.68	466.38	5.0	1.6	18.09	62	.5005196	.5005366	− 8	−129	+ 2	+ 16	−155	−14	.5005063	.5005062	.5005062	980.558
	6	A6	D	Aug. 21.....	484.23	470.65	5.3	1.9	17.99	58	.5005168	.5005318	−11	−125	+ 5	+ 16	−155	−14	.5005039	.5005018	.5005028	980.572
																					980.570 ±0.003
No. 88. Wilson, N. Y., William H. Burger.	1	A4	D	Aug. 30-31..	333.12	325.31	5.1	1.0	16.56	53	.5007516	.5007697	− 7	− 65	+11	+ 40	−131	−16	.5007479	.5007489	.5007484	980.433
	2	A4	D	Aug. 31.....	334.12	326.54	4.9	1.0	15.82	54	.5007491	.5007668	− 6	− 34	+ 9	+ 40	−131	−16	.5007487	.5007490	.5007488	980.431
	3	A5	D	Aug. 31.....	435.34	422.56	5.2	1.2	16.25	58	.5005749	.5005923	− 8	− 52	+ 6	+ 40	−131	−16	.5005719	.5005722	.5005720	980.430
	4	A5	D	Aug. 31-Sept. 1.	432.76	420.04	5.2	1.3	16.30	59	.5005783	.5005959	− 8	− 54	+ 4	+ 40	−131	−16	.5005749	.5005754	.5005752	980.418
	5	A6	D	Sept. 1......	463.70	449.71	5.2	1.5	15.39	60	.5005397	.5005565	− 9	− 16	+ 3	+ 40	−131	−16	.5005399	.5005396	.5005398	980.427
	6	A6	D	Sept. 1......	466.60	453.82	5.0	1.2	15.04	63	.5005364	.5005515	− 7	− 2	0	+ 40	−131	−16	.5005379	.5005359	.5005369	980.438
																					980.430 ±0.002
No. 89. Alpena, Mich., William H. Burger.	1	A4	D	Sept. 10−11.	348.94	335.82	5.1	1.3	17.60	56	.5007175	.5007456	− 8	−109	+ 7	+123	−143	−14	.5007174	.5007189	.5007182	980.551
	2	A4	D	Sept. 11.....	348.80	335.60	5.1	1.3	17.52	57	.5007178	.5007460	− 8	−106	+ 6	+123	−143	−14	.5007179	.5007195	.5007187	980.549
	3	A5	D	Sept. 11.....	464.90	441.96	5.2	1.5	17.40	61	.5005383	.5005663	− 9	−101	+ 3	+123	−143	−14	.5005385	.5005399	.5005392	980.559
	4	A5	D	Sept. 11-12..	464.11	441.72	5.0	1.3	17.37	63	.5005393	.5005666	− 8	− 99	+ 1	+123	−143	−14	.5005396	.5005403	.5005400	980.556
	5	A6	D	Sept. 12.....	493.36	469.20	5.0	1.6	17.50	57	.5005072	.5005334	− 8	−105	+ 6	+123	−143	−14	.5005074	.5005070	.5005072	980.554
	6	A6	D	Sept. 12.....	493.60	470.63	5.0	1.7	17.60	59	.5005070	.5005318	− 9	−109	+ 5	+123	−143	−14	.5005066	.5005048	.5005057	980.560
	7	A6	D	Sept 12-13..	491.92	470.76	5.1	1.5	17.62	60	.5005087	.5005316	− 8	−110	+ 4	+123	−143	−14	.5005082	.5005045	.5005064	980.557
	8	A5	D	Sept. 13.....	461.24	439.82	5.1	1.6	17.72	57	.5005426	.5005691	− 8	−114	+ 6	+123	−143	−14	.5005419	.5005419	.5005419	980.548
	9	A4	D	Sept. 13.....	348.70	335.64	5.0	1.6	17.93	59	.5007180	.5007459	− 8	−123	+ 5	+123	−143	−14	.5007163	.5007176	.5007170	980.556
																					980.554 ±0.001
No. 57. Iron River, Mich., William H. Burger.	1	A4	D	Sept. 18-19..	359.42	348.64	5.0	1.4	16.35	61	.5006966	.5007181	− 8	− 57	+ 2	+108	−139	− 9	.5007002	.5006970	.5006985	980.633
	2	A4	D	Sept. 19.....	359.76	348.51	5.1	1.2	16.33	62	.5006959	.5007184	− 7	− 56	+ 1	+108	−139	− 9	.5006996	.5006974	.5006985	980.633
	3	A5	D	Sept. 19.....	483.83	462.15	4.9	1.4	16.45	60	.5005173	.5005415	− 8	− 61	+ 3	+108	−139	− 9	.5005206	.5005201	.5005204	980.643
	4	A5	D	Sept. 19-20..	483.16	460.82	5.0	1.3	16.36	63	.5005179	.5005431	− 8	− 57	+ 1	+108	−139	− 9	.5005214	.5005219	.5005216	980.638
	5	A6	D	Sept. 20.....	517.52	491.30	5.2	1.2	16.28	60	.5004836	.5005094	− 8	− 54	+ 4	+108	−139	− 9	.5004877	.5004888	.5004882	980.630
	6	A6	D	Sept. 20.....	518.46	489.32	5.0	1.7	16.51	61	.5004826	.5005114	− 9	− 63	+ 2	+108	−139	− 9	.5004855	.5004898	.5004876	980.633
																					980.635 ±0.001
No. 58. Ely, Minn., William H. Burger.	1	A4	D	Sept. 27-28..	383.20	368.76	5.1	0.9	16.03	55	.5006532	.5006789	− 7	− 43	+ 8	+119	−178	− 9	.5006600	.5006560	.5006580	980.791
	2	A4	D	Sept. 28.....	381.88	366.58	5.1	0.8	15.96	56	.5006555	.5006829	− 7	− 40	+ 8	+119	−178	− 9	.5006626	.5006603	.5006614	980.778
	3	A5	D	Sept. 28.....	518.86	487.97	4.8	1.2	16.23	57	.5004823	.5005128	− 7	− 52	+ 6	+119	−178	− 9	.5004880	.5004888	.5004884	980.764
	4	A5	D	Sept. 28-29..	517.04	486.48	5.0	1.2	16.43	58	.5004840	.5005144	− 7	− 60	+ 5	+119	−178	− 9	.5004888	.5004895	.5004892	980.761
	5	A6	D	Sept. 29.....	555.01	520.94	5.2	1.2	16.51	59	.5004509	.5004804	− 8	− 63	+ 4	+119	−178	− 9	.5004552	.5004550	.5004551	980.760
	6	A6	D	Sept. 29.....	557.10	518.88	5.1	1.4	16.65	61	.5004491	.5004823	− 8	− 69	+ 3	+119	−178	− 9	.5004527	.5004562	.5004544	980.763
																					980.770 ±0.003
No. 59. Pembina, N. Dak., William H. Burger.	1	A4	D	Oct. 6-7.....	396.74	380.39	5.1	1.2	18.78	61	.5006309	.5006581	− 7	−158	+ 3	+131	−153	−19	.5006259	.5006247	.5006253	980.920
	2	A4	D	Oct. 7.......	397.28	378.60	5.2	1.[illegible]	18.24	61	.5006300	.5006612	− 7	−136	+ 3	+131	−153	− 19	.5006272	.5006300	.5006286	980.906
	3	A5	D	Oct. 7.......	556.17	522.70	4.9	1.3	17.99	60	.5004499	.5004787	− 7	−125	+ 4	+131	−153	− 19	.5004483	.5004487	.5004485	980.920
	4	A5	D	Oct. 7-8....	549.25	517.76	5.0	1.5	18.08	61	.5004556	.5004833	− 8	−129	+ 3	+131	−153	− 19	.5004534	.5004527	.5004530	980.902
	5	A6	D	Oct. 8.......	601.51	566.62	5.2	1.2	17.57	60	.5004160	.5004416	− 7	−108	+ 4	+131	−153	− 19	.5004161	.5004133	.5004147	980.918
	6	A6	D	Oct. 8.......	599.32	559.62	5.0	1.1	18.14	61	.5004175	.5004471	− 7	−132	+ 3	+131	−153	− 19	.5004151	.5004163	.5004157	980.914
	7	A6	D	Oct. 8-9.....	598.55	558.50	5.1	1.6	18.04	61	.5004181	.5004480	− 8	−127	+ 3	+131	−153	− 19	.5004161	.5004176	.5004168	980.910
	8	A5	D	Oct. 9.......	559.62	527.94	5.2	1.3	17.10	58	.5004471	.5004740	− 8	− 88	+ 6	+131	−153	− 19	.5004493	.5004478	.5004486	980.920
	9	A4	D	Oct. 9.......	405.33	387.62	5.3	1.6	16.38	57	.5006175	.5006458	− 9	− 58	+ 6	+131	−153	− 19	.5006226	.5006225	.5006226	980.930
																					980.916 ±0.002
No. 60. Mitchell, S. Dak., William H. Burger.	1	A4	D	Oct. 21−22...	324.04	312.84	5.2	1.3	18.87	62	.5007727	.5008004	− 8	−162	+ 2	+110	−167	− 17	.5007652	.5007652	.5007652	980.372
	2	A4	D	Oct. 22......	324.94	313.31	5.0	1.3	18.47	62	.5007705	.5007992	− 8	−145	+ 2	+110	−167	− 17	.5007647	.5007657	.5007652	980.372
	3	A5	D	Oct. 22......	420.96	402.58	5.0	1.2	18.87	58	.5005946	.5006217	− 7	−162	+ 6	+110	−167	− 17	.5005876	.5005870	.5005873	980.376
	4	A5	D	Oct. 22-23...	419.76	401.64	4.8	1.2	18.99	60	.5005963	.5006232	− 7	−167	+ 4	+110	−167	− 17	.5005886	.5005878	.5005882	980.373
	5	A6	D	Oct. 23......	445.46	424.12	5.3	1.2	18.83	59	.5005618	.5005902	− 8	−160	+ 5	+110	−167	− 17	.5005548	.5005555	.5005552	980.368
	6	A6	D	Oct. 23......	448.06	427.31	5.2	0.9	18.57	61	.5005586	.5005858	− 7	−150	+ 3	+110	−167	− 17	.5005525	.5005520	.5005522	980.380
																					980.374 ±0.001

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1823	Chronometer No. 1841	Initial	Final			Chronometer No. 1823	Chronometer No. 1841	Arc	Temperature	Pressure	Rate		Flexure	Chronometer No. 1823	Chronometer No. 1841	Mean		
																Chronometer No 1823	Chronometer No. 1841						
				1909	s.	s.	mm.	mm.	° C.	mm.	s.	s.							s.	s.	s.	Dynes	Dynes
Washington, D. C., Coast and Geodetic Survey Office, William H. Burger.	1	A4	D	Nov. 4-5....	300.72	291.69	5.1	1.5	17.70	57	0.5008328	0.5008585	− 8	−113	+ 7	+126	−130	− 16	0.5008324	0.5008325	0.5008324	....	
	2	A4	D	Nov. 5......	301.36	292.36	5.3	1.3	17.40	57	.5008309	.5008566	− 8	−101	+ 6	+126	−130	− 16	.5008316	.5008317	.5008316	....	
	3	A4	D	Nov. 5......	301.78	292.63	5.1	1.3	17.08	57	.5008298	.5008558	− 8	− 87	+ 6	+126	−130	− 16	.5008319	.5008323	.5008321	....	
	4	A5	D	Nov. 5-6....	382.60	368.99	5.1	1.2	17.11	56	.5006543	.5006784	− 7	− 88	+ 7	+131	−129	− 16	.5006570	.5006551	.5006560	....	
	5	A5	D	Nov. 6......	383.26	368.30	5.2	1.4	17.05	57	.5006531	.5006797	− 8	− 86	+ 6	+131	−129	− 16	.5006558	.5006564	.5006561	....	
	6	A5	D	Nov. 6......	384.28	368.61	4.9	1.3	16.80	58	.5006514	.5006792	− 7	− 75	+ 6	+131	−129	− 16	.5006553	.5006571	.5006562	....	
	7	A6	D	Nov. 6-7....	406.54	390.17	5.0	1.2	16.71	57	.5006157	.5006416	− 7	− 72	+ 7	+137	−134	− 16	.5006206	.5006194	.5006200	....	
	8	A6	D	Nov. 7......	406.38	389.58	5.3	1.1	16.55	58	.5006159	.5006425	− 7	− 65	+ 5	+137	−134	− 16	.5006213	.5006208	.5006210	....	
	9	A6	D	Nov. 7......	409.04	391.26	4.9	1.0	16.23	59	.5006119	.5006398	− 6	− 52	+ 4	+137	−134	− 16	.5006186	.5006194	.5006190	....	
	10	A6	D	Nov. 7-8....	408.94	391.07	4.9	1.2	16.09	62	.5006121	.5006401	− 6	− 46	+ 1	+137	−134	− 16	.5006191	.5006200	.5006196	....	
	11	A6	D	Nov. 8......	407.66	391.26	5.2	1.2	16.07	64	.5006140	.5006398	− 8	− 45	− 1	+137	−134	− 16	.5006207	.5006194	.5006200	....	
	12	A6	D	Nov. 8......	407.25	389.96	5.0	0.9	16.19	66	.5006146	.5006419	− 7	− 50	− 3	+137	−134	− 16	.5006207	.5006209	.5006208	....	
	13	A6	D	Nov. 8-9....	406.66	389.47	5.2	1.5	16.43	56	.5006155	.5006427	− 9	− 60	+ 7	+137	−134	− 16	.5006214	.5006215	.5006214	....	
	14	A6	D	Nov. 9......	405.50	388.86	5.2	1.4	16.70	58	.5006173	.5006437	− 9	− 71	+ 6	+137	−134	− 16	.5006220	.5006213	.5006216	....	
	15	A6	D	Nov. 9......	406.24	388.30	5.0	1.2	16.86	59	.5006162	.5006447	− 7	− 78	+ 5	+137	−134	− 16	.5006203	.5006217	.5006210	....	
	16	A6	D	Nov. 9-10...	405.42	387.72	5.2	1.2	16.83	60	.5006174	.5006457	− 8	− 77	+ 4	+137	−134	− 16	.5006214	.5006226	.5006220	....	
	17	A6	D	Nov. 10.....	405.18	387.23	5.2	1.5	16.70	61	.5006177	.5006464	− 9	− 71	+ 3	+137	−134	− 16	.5006221	.5006237	.5006229	....	
	18	A6	D	Nov. 10.....	406.79	390.01	5.1	0.8	16.58	62	.5006153	.5006418	− 7	− 66	+ 1	+137	−134	− 16	.5006202	.5006196	.5006199	....	
Washington, D. C., Coast and Geodetic Survey Office, William H. Burger.	1	A4	D	Nov. 26-27..	303.71	296.22	4.3	1.4	14.70	61	.5008245	.5008454	− 7	+ 13	+ 2	+117	− 94	− 12	.5008358	.5008356	.5008357	....	
	2	A4	D	Nov. 27.....	304.36	296.68	4.7	1.3	14.50	64	.5008227	.5008441	− 7	+ 21	− 1	+117	− 94	− 12	.5008345	.5008348	.5008346	....	
	3	A5	D	Nov. 27.....	388.11	375.62	4.9	1.4	14.39	61	.5006150	.5006665	− 8	+ 26	+ 2	+117	− 94	− 12	.5006575	.5006579	.5006577	....	
	4	A5	D	Nov. 27-28..	387.90	376.65	4.8	1.7	14.29	64	.5006453	.5006646	− 9	+ 30	− 1	+121	−104	− 12	.5006582	.5006550	.5006566	....	
	5	A6	D	Nov. 28.....	411.01	396.95	5.0	1.6	14.25	58	.5006090	.5006305	− 8	+ 31	+ 5	+121	−104	− 12	.5006227	.5006217	.5006222	....	
	6	A6	D	Nov. 28.....	411.82	394.62	4.9	1.5	14.04	61	.5006078	.5006344	− 8	+ 40	+ 2	+121	−104	− 12	.5006221	.5006262	.5006242	....	
Washington, D. C., Coast and Geodetic Survey Office, William H. Burger.	[a] 1	A4	D	Dec. 2-3.....	307.01	298.96	4.9	1.8	12.78	66	.5008157	.5008376	− 9	+ 93	− 3	+142	− 76	− 12	.5008368	.5008369	.5008369	....	
	2	A4	D	Dec. 3.......	307.38	300.14	4.9	1.5	12.80	59	.5008147	.5008343	− 8	+ 92	+ 4	+142	− 76	− 12	.5008365	.5008343	.5008354	....	
	3	A5	D	Dec. 3.......	392.86	378.42	4.7	1.3	12.91	64	.5006372	.5006616	− 7	+ 88	− 1	+142	− 76	− 12	.5006582	.5006608	.5006595	....	
	4	A5	D	Dec. 3-4.....	392.37	379.58	4.7	1.7	12.92	60	.5006379	.5006596	− 8	+ 87	+ 3	+158	− 83	− 12	.5006607	.5006583	.5006595	....	
	5	A6	D	Dec. 4.......	415.71	399.69	4.9	1.6	12.99	56	.5006021	.5006262	− 8	+ 84	+ 6	+158	− 83	− 12	.5006249	.5006249	.5006249	....	
	6	A6	D	Dec. 4.......	416.65	399.00	5.1	1.8	12.95	61	.5006008	.5006274	− 9	+ 86	+ 2	+158	− 83	− 12	.5006233	.5006258	.5006246	....	
Washington, D. C., Coast and Geodetic Survey Office, William H. Burger.	1	B4	D	Dec. 2-3.....	311.58	303.28	4.9	1.9	12.58	59	.5008037	.5008257	− 10	+101	+ 3	+142	− 76	− 14	.5008259	.5008261	.5008260	....	
	2	B4	D	Dec. 3.......	311.70	304.27	5.0	1.6	12.43	59	.5008033	.5008230	− 8	+108	+ 3	+142	− 76	− 14	.5008264	.5008243	.5008254	....	
	3	B5	D	Dec. 3.......	358.64	346.58	5.0	1.3	12.51	58	.5006980	.5007223	− 8	+104	+ 4	+142	− 76	− 14	.5007208	.5007233	.5007220	....	
	4	B5	D	Dec. 3-4.....	358.00	347.30	4.8	1.9	12.53	59	.5006993	.5007209	− 10	+103	+ 3	+158	− 83	− 14	.5007233	.5007208	.5007220	....	
	5	B6	D	Dec. 4.......	368.23	355.58	5.0	1.9	12.67	50	.5006798	.5007040	− 10	+ 98	+ 12	+158	− 83	− 14	.5007042	.5007043	.5007042	....	
	6	B6	D	Dec. 4.......	369.38	355.42	4.5	1.6	12.61	50	.5006777	.5007014	− 7	+100	+ 12	+158	− 83	− 14	.5007026	.5007052	.5007039	....	
Washington, D. C., Coast and Geodetic Survey Office, William H. Burger.	1	A4	D	Dec. 8-9.....	308.24	299.98	4.7	1.7	13.02	60	.5008124	.5008348	− 8	+ 83	+ 3	+178	− 59	− 12	.5008368	.5008355	.5008362	....	
	2	A4	D	Dec. 9.......	308.42	300.01	4.8	1.6	12.80	64	.5008119	.5008347	− 8	+ 92	− 1	+178	− 59	− 12	.5008368	.5008359	.5008364	....	
	3	A5	D	Dec. 9.......	395.91	380.62	5.1	1.6	12.41	61	.5006323	.5006577	− 8	+109	+ 1	+178	− 59	− 12	.5006591	.5006608	.5006600	....	
	4	A5	D	Dec. 9-10....	397.30	383.18	5.1	1.7	11.89	64	.5006300	.5006532	− 8	+130	− 1	+167	− 49	− 12	.5006576	.5006592	.5006584	....	
	5	A6	D	Dec. 10......	421.63	407.82	4.7	1.5	11.31	55	.5005936	.5006138	− 8	+155	+ 7	+167	− 49	− 12	.5006245	.5006231	.5006238	....	
	[b] 6	A6	D	Dec. 10......	423.22	407.80	5.1	2.7	11.00	61	.5005914	.5006138	− 13	+168	+ 1	+167	− 49	− 12	.5006225	.5006233	.5006229	....	

				1910																			
No. 61. Sweetwater, Tex., William H. Burger.	1	A4	D	Jan. 13–14...	240.37	246.06	5.1	1.5	12.17	63	.5010422	.5010181	− 8	+119	0	−113	+142	− 14	.5010406	.5010420	.5010413	979.306	979.304 ±0.001
	2	A4	D	Jan. 14......	239.60	246.20	4.5	1.3	12.13	63	.5010456	.5010175	− 7	+120	+ 1	−113	+142	− 14	.5010413	.5010417	.5910430	979.300	
	3	A5	D	Jan. 14......	288.60	298.35	5.1	1.7	12.11	58	.5008678	.5008393	− 9	+120	+ 4	−113	+142	− 14	.5008666	.5008636	.5008651	979.305	
	4	A5	D	Jan. 14–15...	288.32	297.52	5.1	1.5	12.07	60	.5008686	.5008417	− 8	+122	+ 2	−113	+142	− 14	.5008675	.5008661	.5008668	979.299	
	5	A6	D	Jan. 15......	301.36	310.76	5.1	1.9	12.12	56	.5008309	.5008058	− 10	+121	+ 6	−113	+142	− 14	.5008299	.5008303	.5008301	979.303	
	6	A6	D	Jan. 15......	302.71	310.48	5.0	1.9	12.06	65	.5008273	.5008065	− 10	+123	− 2	−113	+142	− 14	.5008257	.5008304	.5008280	979.311	
No. 62. Kerrville, Tex., William H. Burger.	1	A4	D	Jan. 22–23...	242.12	236.22	5.1	1.8	11.38	67	.5010347	.5010606	− 9	+152	− 4	+154	− 91	− 10	.5010630	.5010644	.5010637	979.219	979.220 ±0.001
	2	A4	D	Jan. 23......	242.28	236.72	5.1	1.7	11.31	61	.5010340	.5010583	− 9	+155	+ 1	+154	− 91	− 10	.5010631	.5010629	.5010630	979.222	
	3	A5	D	Jan. 23......	292.02	283.77	4.9	1.7	11.26	61	.5008575	.5008825	− 9	+157	+ 1	+154	− 91	− 10	.5008868	.5008873	.5008870	979.219	
	4	A5	D	Jan. 23–24...	291.05	283.38	4.8	1.7	11.57	60	.5008604	.5008838	− 9	+144	+ 2	+154	− 91	− 10	.5008885	.5008874	.5008880	979.215	
	5	A6	D	Jan. 24......	304.28	295.16	5.1	1.7	11.49	60	.5008230	.5008184	− 9	+147	+ 1	+154	− 91	− 10	.5008513	.5008522	.5008518	979.218	
	6	A6	D	Jan. 24......	304.42	296.02	5.1	1.9	11.51	61	.5008226	.5008459	− 10	+146	+ 1	+154	− 91	− 10	.5008507	.5008495	.5008501	979.225	
No. 63. El Paso, Tex., William H. Burger.	1	A4	D	Feb. 1–2.....	231.26	225.78	4.9	1.8	15.87	62	.5010834	.5011097	− 9	− 36	+ 1	+110	−165	− 11	.5010889	.5010877	.5010883	979.123	979.123 ±0.001
	2	A4	D	Feb. 2......	231.22	225.34	5.1	1.7	15.77	60	.5010836	.5011119	− 9	− 32	+ 3	+110	−165	− 11	.5010897	.5010905	.5010901	979.116	
	3	A5	D	Feb. 2......	275.79	268.05	5.0	1.7	16.34	61	.5009081	.5009344	− 9	− 56	+ 2	+110	−165	− 11	.5009117	.5009105	.5009111	979.125	
	4	A5	D	Feb. 2–3.....	275.89	267.76	4.9	1.9	16.40	50	.5009078	.5009354	− 10	− 59	+ 13	+110	−165	− 11	.5009121	.5009122	.5009122	979.121	
	5	A6	D	Feb. 3......	288.20	279.14	4.7	1.6	15.77	66	.5008690	.5008972	− 8	− 32	− 3	+110	−165	− 11	.5008746	.5008753	.5008750	979.127	
	6	A6	D	Feb. 3......	288.32	278.62	5.1	1.7	15.87	59	.5008686	.5008989	− 9	− 36	+ 4	+110	−165	− 11	.5008744	.5008772	.5008758	979.125	
No. 64. Nogales, Ariz., William H. Burger.	[c]1	A4	D	Feb. 10–11..	227.70	222.80	5.3	2.9	14.69	61	.5011004	.5011246	− 15	+ 13	+ 2	+ 92	−196	− 16	.5011080	.5011034	.5011057	979.057	979.060 ±0.001
	[c]2	A4	D	Feb. 11......	228.42	223.16	5.2	2.9	14.49	55	.5010969	.5011228	− 15	+ 21	+ 8	+ 92	−196	− 16	.5011059	.5011029	.5011044		
	3	A4	D	Feb. 11......	229.68	223.60	5.3	1.5	13.70	65	.5010909	.5011206	− 9	+ 54	− 2	+ 92	−196	− 16	.5011028	.5011037	.5011032	979.065	
	4	A5	D	Feb. 11......	274.22	264.89	4.7	1.7	13.92	63	.5009133	.5009455	− 8	+ 45	− 0	+ 92	−196	− 16	.5009246	.5009280	.5009263	579.066	
	5	A5	D	Feb. 11–12..	273.52	264.20	5.3	1.7	14.51	55	.5009157	.5009181	− 9	+ 21	+ 7	+129	−195	− 16	.5009289	.5009289	.5009289	979.056	
	6	A6	D	Feb. 12......	286.06	275.45	5.0	1.4	13.69	56	.5008755	.5009093	− 8	+ 55	+ 7	+129	−195	− 16	.5008922	.5008936	.5008929	979.057	
	7	A6	D	Feb. 12......	286.07	276.23	4.7	1.7	13.44	62	.5008755	.5009067	− 7	+ 65	+ 1	+129	−195	− 16	.5008927	.5008915	.5008921	979.060	
No. 65. Yuma, Ariz., William H. Burger.	1	A4	D	Feb. 17–18..	252.20	246.30	5.0	1.7	19.58	70	.5009932	.5010171	− 9	−192	− 5	+126	−142	− 11	.5009842	.5009812	.5009827	979.536	979.528 ±0.001
	2	A4	D	Feb. 18......	252.72	245.90	4.9	1.7	19.26	60	.5009912	.5010188	− 9	−178	+ 4	+126	−142	− 11	.5009844	.5009852	.5009848	979.527	
	3	A5	D	Feb. 18......	307.38	297.93	4.9	1.7	19.24	63	.5008147	.5008405	− 9	−177	+ 1	+126	−142	− 11	.5008077	.5008067	.5008072	979.531	
	4	A5	D	Feb. 18–19..	306.31	296.66	5.1	1.7	19.55	58	.5008175	.5008441	− 9	−191	+ 6	+126	−142	− 11	.5008096	.5008094	.5008095	979.522	
	5	A6	D	Feb. 19......	321.45	310.16	5.1	1.5	19.26	58	.5007790	.5008073	− 8	−178	+ 6	+126	−142	− 11	.5007725	.5007740	.5007732	979.526	
	6	A6	D	Feb. 19......	321.26	309.61	4.9	1.9	19.58	53	.5007795	.5008088	− 9	−192	+ 10	+126	−142	− 11	.5007719	.5007744	.5007732	979.526	
No. 66. Compton, Cal., William H. Burger.	1	A4	D	Feb. 25–26..	262.52	255.94	5.0	1.6	15.17	61	.5009541	.5009787	− 8	− 7	+ 2	+173	−106	− 12	.5009689	.5009656	.5009672	979.596	979.587 ±0.003
	2	A4	D	Feb. 26......	264.45	256.42	4.7	1.6	14.47	56	.5009472	.5009769	− 8	+ 22	+ 7	+173	−106	− 12	.5009654	.5009672	.5009663	979.599	
	3	A5	D	Feb. 26......	322.38	311.00	5.2	1.5	14.59	58	.5007766	.5008052	− 9	+ 17	+ 4	+173	−106	− 12	.5007939	.5007946	.5007942	979.582	
	4	A5	D	Feb. 26–27..	320.97	310.43	4.8	1.7	14.67	54	.5007800	.5008066	− 8	+ 14	+ 9	+173	−106	− 12	.5007976	.5007963	.5007970	979.572	
	5	A6	D	Feb. 27......	339.14	325.50	5.1	1.5	14.25	63	.5007382	.5007692	− 8	+ 31	0	+173	−106	− 12	.5007566	.5007597	.5007582	979.584	
	6	A6	D	Feb. 27......	338.24	325.84	5.1	1.6	14.32	80	.5007402	.5007684	− 8	+ 28	− 16	+173	−106	− 12	.5007567	.5007570	.5007568	979.590	
No. 67. Goldfield, Nev., William H. Burger.	1	A4	D	Mar. 5–6.....	253.85	245.30	5.0	1.6	13.91	62	.5009868	.5010210	− 8	+ 46	+ 1	+155	−206	− 17	.5010045	.5010026	.5010036	979.454	979.455 ±0.000
	2	A4	D	Mar. 6.......	254.50	245.72	4.8	2.0	13.39	62	.5009812	.5010195	− 10	+ 68	+ 1	+155	−206	− 17	.5010039	.5010031	.5010035	979.455	
	3	A5	D	Mar. 6.......	310.94	297.50	4.9	1.9	13.19	57	.5008053	.5008418	− 10	+ 76	+ 5	+155	−206	− 17	.5008262	.5008266	.5008264	979.456	
	4	A5	D	Mar. 6–7.....	310.45	297.32	4.8	1.5	13.41	53	.5008065	.5008122	− 8	+ 67	+ 10	+155	−206	− 17	.5008272	.5008268	.5008270	979.454	
	5	A6	D	Mar. 7.......	324.82	309.97	5.1	1.9	13.22	61	.5007708	.5008079	− 10	+ 75	+ 2	+155	−206	− 17	.5007913	.5007923	.5007918	979.453	
	6	A6	D	Mar. 7.......	325.60	310.16	4.9	1.3	13.26	59	.5007690	.5008073	− 7	+ 73	+ 4	+155	−206	− 17	.5007898	.5007920	.5007909	979.456	
No. 68. Yavapai, Ariz., William H. Burger.	1	A4	D	Mar. 17–18...	246.02	237.79	5.0	1.5	7.32	67	.5010182	.5010536	− 8	+322	− 5	+213	−129	− 14	.5010690	.5010702	.5010696	979.196	979.191 ±0.003
	2	A4	D	Mar. 18......	247.20	238.94	5.0	1.5	6.43	67	.5010134	.5010485	− 8	+359	− 6	+213	−129	− 14	.5010678	.5010687	.5010682	979.202	
	3	A5	D	Mar. 18......	297.96	285.92	4.7	1.5	6.26	60	.5008404	.5008759	− 8	+366	+ 1	+213	−129	− 14	.5008962	.5008975	.5008968	979.181	
	4	A5	D	Mar. 18–19...	298.50	286.68	5.1	1.7	6.18	60	.5008389	.5008736	− 9	+370	+ 1	+213	−129	− 14	.5008950	.5008955	.5008952	979.187	
	5	A6	D	Mar. 19......	311.83	299.88	5.3	1.5	5.96	61	.5008030	.5008350	− 9	+378	0	+213	−129	− 14	.5008598	.5008576	.5008587	979.191	
	6	A6	D	Mar. 19......	312.05	299.63	5.3	2.1	6.03	59	.5008025	.5008357	− 11	+376	+ 2	+213	−129	− 14	.5008591	.5008581	.5008586	979.191	
No. 69. Grand Canyon, Ariz., William H. Burger.	1	A4	D	Mar. 24–25...	255.52	249.54	4.7	1.3	13.67	58	.5009803	.5010038	− 7	+ 56	+ 5	+149	− 94	− 10	.5009996	.5009988	.5009992	979.471	979.462 ±0.003
	2	A4	D	Mar. 25......	254.90	249.41	4.6	1.8	13.59	60	.5009827	.5010044	− 8	+ 59	+ 3	+149	− 94	− 10	.5010020	.5009994	.5010006	979.466	
	3	A5	D	Mar. 25......	310.20	300.48	5.3	1.6	13.64	60	.5008072	.5008334	− 9	+ 57	+ 3	+149	− 94	− 10	.5008262	.5008281	.5008272	979.453	
	4	A5	D	Mar. 25–26...	310.95	301.17	4.6	1.5	13.49	58	.5008053	.5008315	− 7	+ 63	+ 5	+149	− 94	− 10	.5008253	.5008272	.5008262	979.457	
	5	A6	D	Mar. 26......	326.06	316.00	5.1	1.7	12.92	56	.5007679	.5007924	− 9	+ 87	+ 6	+149	− 94	− 10	.5007902	.5007904	.5007903	979.459	
	6	A6	D	Mar. 26......	326.44	316.02	5.2	2.1	13.09	56	.5007670	.5007923	− 11	+ 80	+ 6	+149	− 94	− 10	.5007884	.5007894	.5007889	979.464	

[a] Simultaneous with B4, B5, B6.

[b] First half swing only.

[c] Swings 1 and 2 were swings of 4-hour periods and the mean was used as a single swing.

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1823	Chronometer No. 1841	Initial	Final			Chronometer No. 1823	Chronometer No. 1841	Arc	Temperature	Pressure	Rate: Chronometer No. 1823	Rate: Chronometer No. 1841	Flexure	Chronometer No. 1823	Chronometer No. 1841	Mean		
				1910	*s.*	*s.*	*mm.*	*mm.*	° *C.*	*mm.*	*s.*	*s.*							*s.*	*s.*	*s.*	*Dynes*	*Dynes*
No. 70, Gallup, N. Mex., William H. Burger.	1	A4	D	Apr. 1–2	235.46	228.72	4.9	1.5	13.54	65	0.5010640	0.5010954	− 8	+ 61	− 2	+109	−218	− 20	0.5010780	0.5010767	0.5010774	979.166	979.169 ±0.001
	2	A4	D	Apr. 2	236.62	229.76	5.1	1.8	12.37	74	.5010588	.5010905	− 9	+110	− 11	+109	−218	− 20	.5010767	.5010757	.5010762	979.170	
	3	A5	D	Apr. 2	285.18	274.60	5.0	1.7	12.05	54	.5008782	.5009121	− 9	+124	+ 6	+109	−218	− 20	.5008992	.5009004	.5008998	979.169	
	4	A5	D	Apr. 2–3	284.60	274.57	5.2	1.5	11.96	56	.5008800	.5009122	− 9	+127	+ 6	+109	−218	− 20	.5009013	.5009008	.5009010	979.165	
	5	A6	D	Apr. 3	296.82	286.24	5.0	1.5	11.61	58	.5008436	.5008749	− 8	+142	+ 4	+109	−218	− 20	.5008663	.5008649	.5008656	979.164	
	6	A6	D	Apr. 3	298.12	286.56	5.1	2.0	11.27	57	.5008400	.5008739	− 10	+156	+ 5	+109	−218	− 20	.5008640	.5008652	.5008646	979.168	
	7	A6	D	Apr. 3–4	298.96	287.30	5.2	1.5	11.09	61	.5008376	.5008717	− 9	+164	+ 1	+109	−218	− 20	.5008621	.5008635	.5008628	979.176	
	8	A6	D	Apr. 4	299.28	287.56	5.5	1.8	11.07	63	.5008368	.5008709	− 11	+164	− 1	+109	−218	− 20	.5008609	.5008623	.5008616	979.180	
	9	A5	D	Apr. 4	284.95	274.60	5.4	2.0	11.51	59	.5008788	.5009121	− 11	+146	+ 3	+109	−218	− 20	.5009015	.5009021	.5009018	979.162	
No. 71. Las Vegas, N. Mex., William H. Burger.	1	A4	D	Apr. 11–12	243.72	236.14	5.2	2.0	8.81	56	.5010279	.5010609	− 11	+259	+ 5	+185	−200	− 12	.5010705	.5010650	.5010677	979.203	979.203 ±0.002
	2	A4	D	Apr. 12	244.35	236.02	5.2	1.8	8.64	56	.5010252	.5010615	− 10	+266	+ 5	+185	−200	− 12	.5010686	.5010664	.5010675	979.204	
	3	A5	D	Apr. 12	294.58	281.76	5.2	1.8	8.94	60	.5008501	.5008888	− 10	+254	+ 2	+185	−200	− 12	.5008920	.5008922	.5008921	979.199	
	4	A5	D	Apr. 12–13	293.74	280.92	5.3	1.8	9.19	59	.5008525	.5008915	− 10	+245	+ 3	+185	−200	− 12	.5008936	.5008941	.5008938	979.193	
	5	A6	D	Apr. 13	305.89	292.40	5.3	1.7	9.22	59	.5008186	.5008564	− 10	+243	+ 3	+185	−200	− 12	.5008595	.5008588	.5008592	979.189	
	6	A6	D	Apr. 13	307.91	293.78	5.4	1.8	9.06	62	.5008133	.5008525	− 10	+249	+ 1	+185	−200	− 12	.5008546	.5008553	.5008550	979.205	
	7	A6	D	Apr. 13–14	308.90	294.28	5.4	1.9	8.73	60	.5008106	.5008509	− 11	+264	+ 3	+185	−200	− 12	.5008535	.5008553	.5008544	979.208	
	8	A6	D	Apr. 14	309.88	295.38	5.2	1.5	8.38	60	.5008081	.5008479	− 9	+270	+ 2	+185	−200	− 12	.5008526	.5008539	.5008532	979.213	
	9	A5	D	Apr. 14	297.76	283.42	5.3	1.9	8.22	60	.5008410	.5008836	− 11	+285	+ 2	+185	−200	− 12	.5008859	.5008900	.5008880	979.215	
No. 72. Shamrock, Tex., William H. Burger.	1	A4	D	Apr. 22–23	259.38	251.36	5.2	1.9	15.96	63	.5009657	.5009965	− 11	− 40	0	+142	−171	− 13	.5009735	.5009730	.5009733	979.572	979.576 ±0.003
	2	A4	D	Apr. 23	260.55	253.81	5.4	2.0	15.21	65	.5009614	.5009870	− 11	− 9	− 2	+142	−171	− 13	.5009721	.5009664	.5009693	979.588	
	3	A5	D	Apr. 23	318.04	305.50	5.2	1.7	15.79	62	.5007873	.5008197	− 10	− 34	+ 1	+142	−171	− 13	.5007959	.5007970	.5007964	979.574	
	4	A5	D	Apr. 23–24	317.83	305.70	4.9	1.8	16.07	61	.5007878	.5008191	− 9	− 45	+ 2	+142	−171	− 13	.5007955	.5007955	.5007955	979.577	
	5	A6	D	Apr. 24	336.08	322.84	4.9	1.5	14.51	70	.5007450	.5007755	− 8	+ 21	− 7	+142	−171	− 13	.5007585	.5007577	.5007581	979.585	
	6	A6	D	Apr. 24	334.63	318.70	5.0	1.7	14.72	64	.5007482	.5007857	− 9	+ 12	− 2	+142	−171	− 13	.5007612	.5007674	.5007643	979.561	
No. 73. Denison, Tex., William H. Burger.	1	A4	D	Apr. 29–30	255.13	246.98	5.2	2.1	19.24	57	.5009818	.5010143	− 11	−178	+ 7	+115	−190	− 11	.5009740	.5009760	.5009750	979.566	979.565 ±0.002
	2	A4	D	Apr. 30	254.82	247.48	5.3	2.0	19.09	62	.5009830	.5010123	− 11	−171	+ 2	+115	−190	− 11	.5009754	.5009742	.5009748	979.567	
	3	A5	D	Apr. 30	308.74	297.16	5.2	1.8	19.72	61	.5008111	.5008427	− 10	−198	+ 3	+115	−190	− 11	.5008010	.5008021	.5008016	979.554	
	4	A5	D	Apr. 30–May 1	309.72	298.63	4.9	1.9	19.81	56	.5008084	.5008385	− 10	−203	+ 8	+115	−190	− 11	.5007983	.5007979	.5007981	979.568	
	5	A6	D	May 1	323.58	311.19	5.0	1.7	19.75	58	.5007738	.5008046	− 9	−200	+ 5	+115	−190	− 11	.5007638	.5007641	.5007640	979.562	
	6	A6	D	May 1	323.11	311.75	4.7	1.7	20.32	59	.5007750	.5008031	− 9	−224	+ 5	+115	−190	− 11	.5007626	.5007602	.5007614	979.572	
Washington, D. C., Coast and Geodetic Survey Office, William H. Burger.	1	A4	D	May 23–24	296.70	287.45	5.1	2.3	19.83	54	.5008440	.5008712	− 11	−202	+ 10	+122	−160	− 12	.5008347	.5008337	.5008342	....	
	2	A4	D	May 24	295.65	286.46	4.8	1.7	20.01	56	.5008470	.5008742	− 9	−210	+ 8	+122	−160	− 12	.5008369	.5008359	.5008364	....	
	11	A4	D	May 27	296.35	286.41	4.8	1.7	19.75	63	.5008450	.5008744	− 9	−199	+ 1	+122	−160	− 12	.5008353	.5008365	.5008359	....	
	12	A4	D	May 27	297.44	287.11	5.0	2.0	19.49	60	.5008419	.5008722	− 10	−188	+ 4	+122	−160	− 12	.5008335	.5008356	.5008346	....	
	3	A5	D	May 24	371.00	358.36	4.8	1.6	20.40	61	.5006693	.5006986	− 8	−226	+ 3	+122	−160	− 12	.5006572	.5006583	.5006578	....	
	4	A5	D	May 24–25	372.14	357.48	4.8	1.6	20.54	58	.5006727	.5007004	− 8	−232	+ 6	+122	−160	− 12	.5006603	.5006598	.5006600	....	
	9	A5	D	May 26	374.11	359.10	4.8	1.7	20.36	64	.5006692	.5006972	− 9	−225	0	+122	−160	− 12	.5006568	.5006566	.5006567	....	
	10	A5	D	May 26–27	372.67	358.20	4.7	1.6	20.12	58	.5006718	.5006989	− 8	−215	+ 6	+122	−160	− 12	.5006611	.5006600	.5006606	....	
	5	A6	D	May 25	393.06	376.11	4.8	1.7	20.73	60	.5006368	.5006656	− 9	−240	+ 4	+122	−160	− 12	.5006233	.5006239	.5006236	....	
	6	A6	D	May 25	391.86	375.26	4.8	1.8	21.41	60	.5006388	.5006671	− 9	−269	+ 4	+122	−160	− 12	.5006224	.5006225	.5006224	....	
	7	A6	D	May 25–26	391.82	375.49	5.0	1.7	21.07	59	.5006389	.5006667	− 9	−254	+ 5	+122	−160	− 12	.5006241	.5006237	.5006239	....	
	8	A6	D	May 26	393.08	376.76	4.9	1.7	20.60	61	.5006368	.5006644	− 9	−235	+ 3	+122	−160	− 12	.5006237	.5006231	.5006234	....	
No. 57. Iron River, Mich., Harold D. King.	1	A4	D	June 22–23	354.84	341.76	4.7	1.5	18.11	62	.5007055	.5007326	− 8	−130	+ 2	+116	−169	− 11	.5007024	.5007010	.5007017	980.633	980.629 ±0.002
	2	A4	D	June 23	354.44	341.30	4.8	1.7	18.14	59	.5007063	.5007336	− 9	−132	+ 5	+116	−169	− 11	.5007032	.5007020	.5007026	980.630	
	3	A5	D	June 23	471.96	447.18	5.0	1.7	18.75	56	.5005302	.5005597	− 9	−157	+ 8	+116	−169	− 11	.5005249	.5005259	.5005254	980.633	
	4	A5	D	June 23–24	472.95	449.71	5.0	1.7	18.30	60	.5005292	.5005565	− 9	−138	+ 4	+116	−169	− 11	.5005254	.5005242	.5005248	980.635	
	5	A6	D	June 24	505.83	478.18	4.8	1.9	18.10	59	.5004947	.5005234	− 10	−130	+ 5	+116	−169	− 11	.5004917	.5004919	.5004918	980.626	
	6	A6	D	June 24	506.06	476.72	4.7	1.9	17.97	54	.5004945	.5005250	− 9	−124	+ 9	+116	−169	− 11	.5004926	.5004946	.5004936	980.619	

No. 74. Minneapolis, Minn., Harold D. King.	1	A4	D	July 2–3	334.36	324.50	5.5	2.0	25.91	54	.5007488	.5007716	− 12	−457	+ 11	+ 90	−149	− 11	.5007109	.5007098	.5007103	980.598	980.596 ±0.001
	2	A4	D	July 3	334.00	324.04	4.8	1.7	25.92	58	.5007496	.5007727	− 9	−457	+ 7	+ 90	−149	− 11	.5007116	.5007108	.5007112	980.595	
	3	A5	D	July 3	437.10	418.93	5.0	1.8	25.95	60	.5005726	.5005975	− 9	−459	+ 5	+ 90	−149	− 11	.5005342	.5005352	.5005347	980.599	
	4	A5	D	July 3–4	436.38	419.43	5.0	1.9	25.88	56	.5005735	.5005968	− 10	−456	+ 9	+ 90	−149	− 11	.5005357	.5005351	.5005354	980.597	
	5	A6	D	July 4	464.10	444.45	4.7	1.7	25.71	63	.5005393	.5005632	− 8	−449	+ 2	+ 90	−149	− 11	.5005017	.5005017	.5005017	980.592	
	6	A6	D	July 4	465.44	444.40	4.9	1.7	25.70	56	.5005376	.5005632	− 9	−448	+ 9	+ 90	−149	− 11	.5005007	.5005024	.5005016	980.592	
No. 75. Lead, S. Dak., Harold D. King.	1	A4	D	July 11–12	311.74	296.76	4.9	1.5	14.63	56	.5008032	.5008438	− 8	+ 16	+ 7	+159	−261	− 9	.5008197	.5008183	.5008190	980.173	980.169 ±0.001
	2	A4	D	July 12	311.80	296.58	4.7	1.6	14.66	58	.5008031	.5008444	− 8	+ 14	+ 5	+159	−261	− 9	.5008192	.5008185	.5008188	980.173	
	3	A5	D	July 12	396.90	372.58	4.8	1.6	14.91	59	.5006307	.5006719	− 8	+ 4	+ 4	+159	−261	− 9	.5006457	.5006449	.5006453	980.167	
	4	A5	D	July 12–13	397.14	373.70	5.0	1.7	14.86	58	.5006303	.5006699	− 9	+ 6	+ 5	+159	−261	− 9	.5006455	.5006431	.5006443	980.171	
	5	A6	D	July 13	418.94	392.38	4.7	1.7	15.15	59	.5005975	.5006379	− 8	− 6	+ 4	+159	−261	− 9	.5006115	.5006099	.5006107	980.165	
	6	A6	D	July 13	420.54	391.59	4.9	1.8	15.17	56	.5005952	.5006392	− 9	− 7	+ 7	+159	−261	− 9	.5006093	.5006113	.5006103	980.167	
No. 76. Bismarck, N. Dak., Harold D. King.	1	A4	D	July 19–20	346.98	331.80	4.9	1.5	22.86	61	.5007215	.5007546	− 8	−318	+ 3	+135	−185	− 8	.5007019	.5007030	.5007024	980.629	980.624 ±0.001
	2	A4	D	July 20	347.26	331.75	5.1	1.7	22.96	56	.5007210	.5007547	− 9	−313	+ 8	+135	−185	− 8	.5007023	.5007040	.5007031	980.627	
	3	A5	D	July 20	455.64	430.86	5.1	1.7	22.91	62	.5005492	.5005809	− 9	−331	+ 3	+135	−185	− 8	.5005282	.5005279	.5005280	980.626	
	4	A5	D	July 20–21	454.64	430.32	5.3	1.8	22.99	58	.5005505	.5005817	− 10	−335	+ 6	+135	−185	− 8	.5005293	.5005285	.5005289	980.623	
	5	A6	D	July 21	484.84	457.58	5.0	1.6	22.89	60	.5005162	.5005469	− 8	−331	+ 5	+135	−185	− 8	.5004955	.5004942	.5004948	980.619	
	6	A6	D	July 21	485.05	456.54	5.2	1.9	23.04	53	.5005160	.5005482	− 11	−337	+ 11	+135	−185	− 8	.5004950	.5004952	.5004951	980.619	
No. 77. Hinsdale, Mont., Harold D. King.	1	A6	D	July 27–28	534.06	496.44	5.3	1.7	19.41	65	.5004686	.5005041	− 10	−185	− 1	+173	−187	− 10	.5004653	.5004648	.5004650	980.735	980.738 ±0.000
	2	A6	D	July 28	538.96	499.83	4.8	1.7	18.71	62	.5004642	.5005007	− 9	−155	+ 2	+173	−187	− 10	.5004643	.5004648	.5004646	980.737	
	3	A5	D	July 28	500.83	466.59	5.2	1.9	18.92	61	.5004997	.5005364	− 11	−164	+ 3	+173	−187	− 10	.5004988	.5004995	.5004992	980.739	
	4	A5	D	July 28–29	500.78	467.56	5.1	1.8	18.79	60	.5004997	.5005352	− 9	−159	+ 4	+173	−187	− 10	.5004996	.5004991	.5004994	980.738	
	5	A4	D	July 29	371.77	353.46	5.1	1.7	18.41	59	.5006731	.5007083	− 9	−143	+ 5	+173	−187	− 10	.5006750	.5006739	.5006744	980.739	
	6	A4	D	July 29	372.24	352.80	4.7	1.9	18.47	61	.5006725	.5007096	− 9	−145	+ 3	+173	−187	− 10	.5006737	.5006748	.5006742	980.740	
No. 78. Sand Point, Idaho, Harold D. King.	1	A4	D	Aug. 3–4	365.34	351.30	5.0	1.7	16.28	71	.5006852	.5007127	− 9	− 54	− 7	+130	−160	− 9	.5006903	.5006888	.5006896	980.680	980.679 ±0.000
	2	A4	D	Aug. 4	365.96	351.76	5.1	1.9	16.14	63	.5006831	.5007117	− 10	− 48	0	+130	−160	− 9	.5006904	.5006890	.5006897	980.680	
	3	A5	D	Aug. 4	492.46	464.16	5.0	1.3	16.34	68	.5005081	.5005392	− 8	− 56	− 4	+130	−160	− 9	.5005134	.5005155	.5005144	980.679	
	4	A5	D	Aug. 4–5	489.88	461.19	5.1	1.9	16.48	71	.5005108	.5005392	− 10	− 62	− 7	+130	−160	− 9	.5005150	.5005144	.5005147	980.678	
	5	A6	D	Aug. 5	527.16	497.59	5.1	1.7	16.43	61	.5004747	.5005029	− 9	− 60	+ 2	+130	−160	− 9	.5004801	.5004793	.5004797	980.679	
	6	A6	D	Aug. 5	528.74	496.78	4.9	1.5	16.35	62	.5004733	.5005037	− 8	− 57	+ 1	+130	−160	− 9	.5004790	.5004804	.5004797	980.679	
No. 79. Boise, Idaho, Harold D. King.	1	A4	D	Aug. 10–11	307.73	297.64	5.1	1.8	18.52	63	.5008137	.5008414	− 9	−147	+ 1	+130	−172	− 10	.5008102	.5008077	.5008090	980.212	980.211 ±0.001
	2	A4	D	Aug. 11	307.99	297.23	4.9	1.8	18.43	59	.5008130	.5008425	− 9	−144	+ 5	+130	−172	− 10	.5008102	.5008095	.5008098	980.209	
	3	A5	D	Aug. 11	393.19	374.90	5.1	1.7	18.59	67	.5006366	.5006677	− 9	−150	− 2	+130	−172	− 10	.5006325	.5006334	.5006330	980.215	
	4	A5	D	Aug. 11–12	391.96	373.78	5.1	1.7	18.61	76	.5006386	.5006697	− 9	−151	− 11	+130	−172	− 10	.5006335	.5006344	.5006340	980.210	
	5	A6	D	Aug. 12	415.44	396.13	4.8	1.8	18.76	53	.5006025	.5006319	− 9	−158	+ 11	+130	−172	− 10	.5005989	.5005981	.5005985	980.212	
	6	A6	D	Aug. 12	415.46	391.43	5.0	1.6	18.59	64	.5006025	.5006346	− 8	−150	0	+130	−172	− 10	.5005987	.5006006	.5005996	980.209	
					1589	2490					1589	2490				1589	2490		1589	2490			
No. 84. Washington, D. C., Bureau of Standards, William H. Burger.	1	B4	D	Aug. 18–19	284.00	296.82	5.3	1.9	25.38	51	.5008818	.5008436	− 11	−435	+ 13	− 79	+279	− 12	.5008294	.5008270	.5008282	980.099	980.094 ±0.001
	2	B4	D	Aug. 19	284.26	296.18	5.1	1.7	25.30	52	.5008810	.5008455	− 9	−432	+ 13	− 79	+279	− 12	.5008291	.5008294	.5008293	980.095	
	3	B5	D	Aug. 19	321.69	336.67	4.9	1.8	25.25	58	.5007783	.5007437	− 9	−430	+ 7	− 84[a]	+273[a]	− 12	.5007255	.5007266	.5007260	980.095	
	4	B5	D	Aug. 19–20	321.74	337.10	5.1	1.9	24.93	60	.5007782	.5007427	− 10	−416	+ 5	− 88	+266	− 12	.5007261	.5007260	.5007260	980.095	
	5	B6	D	Aug. 20	329.43	345.14	5.4	2.0	25.02	55	.5007600	.5007254	− 11	−420	+ 10	− 88	+266	− 12	.5007079	.5007087	.5007083	980.089	
	6	B6	D	Aug. 20	329.40	345.54	5.0	2.1	25.08	58	.5007601	.5007245	− 10	−422	+ 7	− 88	+266	− 12	.5007076	.5007074	.5007075	980.092	
					1823	1841					1823	1841				1823	1841		1823	1841			
No. 80. Astoria, Oreg., Harold D. King.	1	A4	D	Aug. 17–18	372.25	360.98	5.3	1.7	16.69	60	.5006725	.5006935	− 10	− 71	+ 4	+163	−114	− 10	.5006801	.5006734	.5006768	980.730	980.726 ±0.001
	2	A4	D	Aug. 18	372.84	359.46	5.3	1.7	16.29	60	.5006714	.5006965	− 10	− 54	+ 3	+163	−114	− 10	.5006806	.5006780	.5006793	980.720	
	3	A5	D	Aug. 18	508.15	482.28	5.1	1.7	16.18	62	.5004924	.5005189	− 9	− 49	+ 2	+163	−114	− 10	.5005021	.5005009	.5005015	980.730	
	4	A5	D	Aug. 18–19	508.48	481.56	5.1	1.7	16.18	57	.5004921	.5005197	− 9	− 49	+ 6	+163	−114	− 10	.5005022	.5005021	.5005021	980.727	
	5	A6	D	Aug. 19	546.75	516.49	5.0	1.9	16.06	58	.5004577	.5004845	− 10	− 44	+ 5	+163	−114	− 10	.5004681	.5004672	.5004676	980.726	
	6	A6	D	Aug. 19	549.86	515.88	5.0	1.7	15.72	59	.5004551	.5004851	− 9	− 30	+ 4	+163	−114	− 10	.5004669	.5004692	.5004680	980.724	
	7	A6	D	Aug. 19–20	549.91	520.68	5.3	1.8	15.63	56	.5004551	.5004806	− 10	− 26	+ 7	+163	−114	− 10	.5004675	.5004653	.5004664	980.730	
	8	A6	D	Aug. 20	549.51	517.95	4.7	1.6	15.56	56	.5004554	.5004832	− 8	− 23	+ 7	+163	−114	− 10	.5004683	.5004684	.5004683	980.723	
	9	A5	D	Aug. 20	511.47	480.20	4.9	1.8	15.72	59	.5004892	.5005212	− 9	− 30	+ 4	+163	−114	− 10	.5005010	.5005053	.5005032	980.723	
	10	A5	D	Aug. 20–21	511.62	482.74	4.9	1.7	15.69	56	.5004891	.5005184	− 9	− 29	+ 7	+163	−114	− 10	.5005013	.5005029	.5005021	980.727	
	11	A4	D	Aug. 21	375.35	360.68	4.8	1.7	15.75	58	.5006669	.5006941	− 9	− 31	+ 5	+163	−114	− 10	.5006787	.5006782	.5006784	980.724	
	12	A4	D	Aug. 21	377.14	360.22	5.3	1.9	15.61	57	.5006638	.5006950	− 11	− 26	+ 6	+163	−114	− 10	.5006760	.5006795	.5006777	980.727	
	13	A4	D	Aug. 21–22	376.42	361.25	4.9	1.7	15.62	56	.5006651	.5006930	− 9	− 26	+ 7	+163	−114	− 10	.5006776	.5006778	.5006777	980.727	
	14	A4	D	Aug. 22	375.76	360.84	5.1	1.7	15.53	58	.5006662	.5006938	− 9	− 22	+ 5	+163	−114	− 10	.5006789	.5006788	.5006788	980.722	
	15	A5	D	Aug. 22	509.38	480.44	5.1	2.0	15.98	59	.5004913	.5005208	− 10	− 41	+ 4	+163	−114	− 10	.5005019	.5005037	.5005028	980.725	

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[a] Mean of the two rates.

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)			Rate		Flexure	Period corrected			g	Mean g
					Chronometer No. 1823	Chronometer No. 1841	Initial	Final			Chronometer No. 1823	Chronometer No. 1841	Arc	Temperature	Pressure	Chronometer No. 1823	Chronometer No. 1841		Chronometer No. 1823	Chronometer No. 1841	Mean		
				1910	s.	s.	mm.	mm.	° C.	mm.	s.	s.							s.	s.	s.	Dynes	Dynes
No. 81. Sisson, Cal., Harold D. King.	1	A4	D	Aug. 29-30	292.38	280.38	4.9	1.5	14.89	78	0.5008565	0.5008933	− 8	+ 5	− 14	+192	−192	− 15	0.5008725	9.5008709	0.5008717	979.967	979.971 ±0.001
	2	A4	D	Aug. 30	294.64	282.05	4.8	1.7	14.23	50	.5008499	.5008880	− 9	+ 32	+ 12	+192	−192	− 15	.5008711	.5008708	.5008710	979.969	
	3	A5	D	Aug. 30	369.51	349.86	4.9	1.7	15.02	60	.5006775	.5007156	− 9	− 1	+ 3	+192	−192	− 15	.5006945	.5006942	.5006944	979.974	
	4	A5	D	Aug. 30-31	368.92	349.38	4.9	1.7	15.13	60	.5006786	.5007165	− 9	− 5	+ 3	+192	−192	− 15	.5006952	.5006947	.5006950	979.972	
	5	A6	D	Aug. 31	392.60	369.02	4.9	1.7	14.26	60	.5006376	.5006784	− 9	+ 31	+ 3	+192	−192	− 15	.5006578	.5006602	.5006590	979.976	
	6	A6	D	Aug. 31	388.76	366.76	4.7	1.7	15.07	61	.5006439	.5006826	− 8	− 3	+ 2	+192	−192	− 15	.5006607	.5006610	.5006608	976.969	
No. 82. Rock Springs, Wyo., Harold D. King.	1	A6	D	Sept. 7-8	350.00	331.23	5.0	1.7	16.72	64	.5007153	.5007559	− 9	− 72	0	+157	−272	− 11	.5007218	.5007195	.5007206	979.735	979.738 ±0.001
	2	A6	D	Sept. 8	350.52	330.80	5.1	1.7	16.69	58	.5007143	.5007569	− 9	− 71	+ 5	+157	−272	− 11	.5007214	.5007211	.5007212	979.733	
	3	A5	D	Sept. 8	335.40	317.10	5.2	1.9	16.70	61	.5007465	.5007896	− 11	− 71	+ 3	+157	−272	− 11	.5007532	.5007534	.5007533	979.743	
	4	A5	D	Sept. 8-9	334.70	316.72	5.0	1.7	16.63	62	.5007480	.5007906	− 9	− 68	+ 2	+157	−272	− 11	.5007551	.5007548	.5007550	979.737	
	5	A4	D	Sept. 9	271.48	259.95	5.0	1.6	16.39	64	.5009226	.5009636	− 8	− 58	− 1	+157	−272	− 11	.5009305	.5009286	.5009295	979.741	
	6	A4	D	Sept. 9	272.62	259.20	5.2	1.9	16.26	62	.5009187	.5009664	− 11	− 53	+ 1	+157	−272	− 11	.5009270	.5009318	.5009294	979.741	
No. 83. Paxton, Nebr., Harold D. King.	1	A4	D	Sept. 14-15	290.44	278.36	5.0	1.2	16.90	69	.5008623	.5008997	− 7	− 80	− 5	+149	−222	− 13	.5008667	.5008670	.5008668	979.986	979.981 ±0.001
	2	A4	D	Sept. 15	289.46	278.06	5.0	1.9	17.17	60	.5008652	.5009007	− 10	− 91	+ 4	+149	−222	− 13	.5008691	.5008675	.5008683	979.990	
	3	A5	D	Sept. 15	362.26	343.18	5.1	1.7	17.76	56	.5006911	.5007295	− 9	−116	+ 7	+149	−222	− 13	.5006929	.5006942	.5006936	979.978	
	4	A5	D	Sept. 15-16	361.68	343.66	4.9	1.8	18.03	59	.5006921	.5007285	− 9	−127	+ 5	+149	−222	− 13	.5006926	.5006919	.5006922	979.983	
	5	A6	D	Sept. 16	380.64	360.89	5.0	1.9	17.87	60	.5006577	.5006937	− 10	−120	+ 4	+149	−222	− 13	.5006587	.5006576	.5006582	979.979	
	6	A6	D	Sept. 16	380.53	359.32	5.1	1.9	18.22	60	.5006578	.5006968	− 10	−135	+ 4	+149	−222	− 13	.5006573	.5006592	.5006582	979.979	
No. 85. North Hero, Vt., Harold D. King.	1	A6	D	Sept. 25-26	515.18	482.90	4.9	1.7	14.85	56	.5004857	.5005182	− 9	+ 6	+ 7	+175	−136	− 12	.5005024	.5005038	.5005031	980.581	980.587 ±0.001
	2	A6	D	Sept. 26	512.94	486.96	4.9	1.6	14.64	62	.5004879	.5005139	− 8	+ 15	+ 1	+175	−136	− 12	.5005050	.5004999	.5005024	980.583	
	3	A5	D	Sept. 26	480.65	452.51	4.9	1.6	14.59	71	.5005206	.5005531	− 8	+ 17	− 8	+175	−136	− 12	.5005370	.5005384	.5005377	980.588	
	4	A5	D	Sept. 26-27	480.65	453.08	5.1	1.7	14.55	59	.5005206	.5005524	− 9	+ 19	+ 4	+175	−136	− 12	.5005383	.5005390	.5005386	980.584	
	5	A4	D	Sept. 27	359.38	344.81	5.0	1.7	14.47	60	.5006966	.5007261	− 9	+ 22	+ 4	+175	−136	− 12	.5007146	.5007130	.5007138	980.591	
	6	A4	D	Sept. 27	360.29	343.00	5.1	1.8	14.63	62	.5006948	.5007299	− 9	+ 16	+ 2	+175	−136	− 12	.5007120	.5007160	.5007140	980.590	
	7	A4	D	Sept. 27-28	358.34	343.24	5.2	2.3	14.89	62	.5006986	.5007294	− 12	+ 5	+ 2	+175	−136	− 12	.5007144	.5007141	.5007142	980.589	
Washington, D. C., Coast and Geodetic Survey Office, Harold D. King.	1	A4	D	Oct. 26-27	301.93	290.16	5.1	2.0	16.88	56	.5008294	.5008631	− 10	− 79	+ 7	+149	−194	− 9	.5008352	.5008346	.5008349	....	
	2	A4	D	Oct. 27	301.82	290.02	5.0	1.8	16.76	62	.5008297	.5008635	− 9	− 74	+ 2	+149	−194	− 9	.5008356	.5008351	.5008354	....	
	3	A4	D	Oct. 27	302.36	289.82	5.1	1.9	16.90	60	.5008282	.5008641	− 10	− 80	+ 4	+149	−194	− 9	.5008336	.5008352	.5008344	....	
	4	A4	D	Oct. 27-28	301.36	289.12	5.3	1.7	17.02	63	.5008309	.5008662	− 10	− 85	+ 1	+149	−194	− 9	.5008355	.5008365	.5008360	....	
	5	A4	D	Oct. 28	301.63	289.78	5.2	1.6	16.90	63	.5008302	.5008642	− 9	− 80	+ 1	+149	−194	− 9	.5008354	.5008351	.5008352	....	
	6	A4	D	Oct. 28	302.60	291.24	5.0	1.7	16.64	62	.5008275	.5008599	− 9	− 69	+ 2	+149	−194	− 9	.5008339	.5008320	.5008330	....	
	7	A5	D	Oct. 28-29	384.57	366.92	5.0	1.7	16.53	58	.5006509	.5006823	− 9	− 64	+ 5	+181	−154	− 9	.5006613	.5006592	.5006602	....	
	8	A5	D	Oct. 29	384.99	367.88	5.1	1.9	16.17	61	.5006502	.5006805	− 10	− 49	+ 2	+181	−154	− 9	.5006617	.5006585	.5006601	....	
	9	A5	D	Oct. 29	387.48	366.59	5.2	1.9	15.87	61	.5006460	.5006829	− 11	− 36	+ 2	+181	−154	− 9	.5006587	.5006621	.5006604	....	
	10	A6	D	Nov. 1	412.50	392.70	5.1	1.7	14.23	61	.5006068	.5006374	− 9	+ 32	+ 2	+181	−157	− 9	.5006265	.5006233	.5006249	....	
	11	A6	D	Nov. 1	412.25	391.96	5.1	1.6	14.22	61	.5006072	.5006386	− 8	+ 33	+ 2	+181	−157	− 9	.5006271	.5006247	.5006259	....	
	12	A6	D	Nov. 1	413.69	389.32	5.2	1.7	14.31	62	.5006050	.5006430	− 10	+ 29	+ 1	+181	−157	− 9	.5006242	.5006284	.5006263	....	
Washington, D. C., Coast and Geodetic Survey Office, Harold D. King.	1	B4	D	Oct. 26-27	305.58	293.48	4.9	1.9	16.95	56	.5008195	.5008533	− 9	− 82	+ 7	+149	−194	− 10	.5008250	.5008245	.5008248	....	
	2	B4	D	Oct. 27	305.44	293.28	4.9	1.9	17.10	58	.5008198	.5008539	− 9	− 88	+ 5	+149	−194	− 10	.5008245	.5008243	.5008244	....	
	3	B5	D	Oct. 27	349.40	332.69	5.1	1.8	17.30	60	.5007165	.5007526	− 9	− 96	+ 4	+149	−194	− 10	.5007203	.5007221	.5007212	....	
	4	B5	D	Oct. 27-28	348.30	332.06	5.3	1.8	17.30	61	.5007188	.5007540	− 10	− 96	+ 3	+149	−194	− 10	.5007224	.5007233	.5007228	....	
	5	B6	D	Oct. 28	358.08	341.50	5.0	1.7	17.32	59	.5006991	.5007331	− 9	− 97	+ 5	+149	−194	− 10	.5007029	.5007026	.5007028	....	
	6	B6	D	Oct. 28	359.62	343.65	4.9	1.7	16.95	59	.5006962	.5007285	− 9	− 82	+ 5	+149	−194	− 10	.5007015	.5006995	.5007005	....	

				1911																		
No. 90. Virginia Beach, Va., Harold D. King.	1	A4	D	Jan. 10–11...	292.10	292.98	5.1	1.8	6.57	76	.5008573	.5008548	−9	+353	−14	+59	+93	−14	.5008948	.5008957	.5008952	979.878
	2	A4	D	Jan. 11......	292.54	293.20	5.3	1.7	6.60	80	.5008561	.5008541	−10	+352	−18	+59	+93	−14	.5008930	.5008944	.5008937	979.884
	3	A6	D	Jan. 11......	384.65	386.40	5.1	1.7	7.27	72	.5006508	.5006478	−9	+324	−10	+59	+93	−14	.5006858	.5006862	.5006860	979.879
	4	A6	D	Jan. 11–12...	380.22	381.73	4.9	1.7	8.65	73	.5006584	.5006557	−9	+266	−11	+59	+93	−14	.5006875	.5006882	.5006879	979.872
	5	A5	D	Jan 12......	359.26	360.82	5.1	1.7	9.38	71	.5006969	.5006939	−9	+235	−9	+59	+93	−14	.5007231	.5007235	.5007233	979.868
	6	A5	D	Jan. 12......	356.32	358.47	4.8	1.8	10.46	59	.5007026	.5006984	−9	+190	+3	+59	+93	−14	.5007255	.5007247	.5007251	979.861
	7	A5	D	Jan. 12–13...	354.15	356.52	5.0	1.5	11.12	66	.5007069	.5007022	−8	+163	−4	+59	+93	−14	.5007265	.5007252	.5007258	979.859
	8	A5	D	Jan. 13......	356.27	358.46	4.8	1.5	11.02	61	.5007027	.5006984	−8	+167	+2	+59	+93	−14	.5007233	.5007224	.5007228	979.870
	9	A4	D	Jan. 13......	284.82	286.62	5.0	2.0	10.84	64	.5008793	.5008737	−10	+174	−3	+59	+93	−14	.5008999	.5008977	.5008988	979.864
																						979.871 ±0.002
No. 91. Durham, N.C., Harold D. King.	1	A4	D	Jan. 20......	274.55	277.70	5.1	1.6	15.69	59	.5009122	.5009019	−8	−29	+4	−6	+104	−11	.5009072	.5009079	.5009076	979.830
	2	A4	D	Jan. 20–21...	274.92	277.84	5.0	1.5	15.72	61	.5009110	.5009014	−8	−30	+2	−6	+104	−11	.5009057	.5009071	.5009064	979.834
	3	A5	D	Jan. 21......	338.82	344.46	5.1	1.7	16.18	54	.5007390	.5007268	−9	−49	+9	−6	+104	−11	.5007324	.5007312	.5007318	979.835
	4	A5	D	Jan. 21–22...	336.60	342.56	5.2	1.5	16.63	68	.5007438	.5007309	−9	−68	−4	−6	+104	−11	.5007340	.5007321	.5007330	979.830
	5	A6	D	Jan. 22......	355.46	361.68	5.2	1.7	16.26	61	.5007043	.5006922	−10	−53	+2	0	+112	−11	.5006971	.5006962	.5006966	979.838
	6	A6	D	Jan. 22......	355.42	362.04	5.2	1.7	15.79	66	.5007044	.5006915	−10	−33	−3	0	+112	−11	.5006987	.5006970	.5006978	979.833
	7	A6	D	Jan. 22–23...	356.94	362.47	5.3	1.5	15.67	64	.5007014	.5006907	−9	−28	−1	0	+112	−11	.5006965	.5006970	.5006968	979.837
	8	A5	D	Jan. 23......	338.30	342.72	5.2	1.4	16.58	63	.5007401	.5007306	−9	−66	+1	0	+112	−11	.5007316	.5007333	.5007324	979.832
																						979.834 ±0.001
No. 92. Fernandina, Fla., Harold D. King.	1	A6	D	Jan. 26–27...	307.08	310.96	5.0	1.6	16.57	64	.5008155	.5008053	−8	−66	−1	−7	+81	−9	.5008064	.5008050	.5008057	979.411
	2	A6	D	Jan. 27......	307.29	310.32	4.9	1.7	16.60	66	.5008149	.5008069	−9	−67	−2	−7	+81	−9	.5008055	.5008063	.5008059	979.410
	3	A5	D	Jan. 27......	293.54	297.06	4.1	1.8	17.02	60	.5008531	.5008430	−9	−85	+4	−7	+81	−9	.5008425	.5008412	.5008418	979.401
	4	A5	D	Jan. 27–28...	293.38	296.39	5.3	1.8	17.52	66	.5008536	.5008449	−10	−106	−2	−7	+81	−9	.5008402	.5008403	.5008402	979.411
	5	A4	D	Jan. 28......	242.99	244.34	4.9	1.7	17.83	72	.5010309	.5010252	−9	−119	−8	−7	+81	−9	.5010157	.5010188	.5010172	979.401
	6	A4	D	Jan. 28......	242.80	245.44	4.9	2.0	17.75	63	.5010318	.5010206	−10	−115	+1	−7	+81	−9	.5010178	.5010154	.5010166	979.404
																						979.407 ±0.001
No. 93. Wilmer, Ala., Harold D. King.	1	A6	D	Feb. 4–5.....	296.01	298.88	5.3	1.8	20.12	65	.5008460	.5008379	−10	−215	−1	+10	+91	−17	.5008227	.5008227	.5008227	979.344
	2	A6	D	Feb. 5.......	297.52	300.39	4.9	1.7	19.59	61	.5008417	.5008336	−9	−192	+3	+10	+91	−17	.5008212	.5008212	.5008212	979.350
	3	A5	D	Feb. 5.......	286.39	289.14	4.8	1.7	19.15	62	.5008744	.5008661	−9	−174	+2	+10	+91	−17	.5008556	.5008554	.5008555	979.351
	4	A5	D	Feb. 5–6.....	286.54	288.70	5.3	1.6	19.36	56	.5008740	.5008675	−9	−183	+8	+10	+91	−17	.5008549	.5008565	.5008557	979.350
	5	A4	D	Feb. 6.......	237.58	239.20	5.3	1.6	19.89	78	.5010545	.5010473	−9	−205	−13	+10	+91	−17	.5010311	.5010320	.5010316	979.345
	6	A4	D	Feb. 6.......	236.70	238.62	5.1	2.4	20.52	70	.5010584	.5010499	−12	−231	−5	+10	+91	−17	.5010329	.5010325	.5010327	979.341
	7	A4	D	Feb. 6–7.....	236.34	238.22	4.8	1.6	21.12	66	.5010600	.5010517	−8	−256	−1	+10	+91	−17	.5010328	.5010326	.5010327	979.341
	8	A4	D	Feb. 7.......	236.66	238.16	4.9	1.6	21.10	65	.5010586	.5010520	−8	−256	−1	+10	+91	−17	.5010314	.5010329	.5010322	979.343
	9	A5	D	Feb. 7.......	283.32	286.75	5.3	1.9	21.10	68	.5008839	.5008733	−11	−256	−3	+10	+91	−17	.5008562	.5008537	.5008550	979.353
																						979.345 ±0.001
No. 94. Aliceville, Ala., Harold D. King.	1	A6	D	Feb. 22–23...	337.23	341.49	4.8	1.6	10.55	62	.5007424	.5007331	−8	+186	0	+107	+170	−16	.5007693	,5007663	.5007678	979.559
	2	A6	D	Feb. 23......	338.24	341.80	5.2	1.7	10.21	65	.5007402	.5007325	−10	+201	−3	+107	+170	−16	.5007681	.5007667	.5007674	979.561
	3	A5	D	Feb. 23......	320.09	323.02	4.9	1.8	10.96	69	.5007822	.5007752	−9	+169	−6	+107	+170	−16	.5008067	.5008060	.5008064	979.543
	4	A5	D	Feb. 23–24...	322.19	321.86	4.9	1.5	10.34	68	.5007771	.5007707	−8	+195	−6	+107	+170	−16	.5008043	.5008042	.5008042	979.551
	5	A4	D	Feb. 24......	264.42	265.54	4.8	1.4	9.94	66	.5009472	.5009432	−8	+212	−4	+107	+170	−16	.5009763	.5009786	.5009774	979.557
	6	A4	D	Feb. 24......	264.14	265.63	5.1	1.5	9.90	61	.5009483	.5009429	−8	+214	+1	+107	+170	−16	.5009781	.5009790	.5009786	979.552
	7	A4	D	Feb. 24–25...	264.98	266.23	5.1	1.3	9.60	66	.5009453	.5009408	−8	+226	−4	+107	+170	−16	.5009758	.5009776	.5009767	979.560
	8	A4	D	Feb. 25......	265.24	266.49	5.1	1.4	9.24	69	.5009443	.5009398	−8	+241	−7	+107	+170	−16	.5009760	.5009778	.5009769	979.559
	9	A4	D	Feb. 25......	263.96	265.58	5.0	1.3	9.84	64	.5009489	.5009433	−8	+216	−2	+107	+170	−16	.5009786	.5009793	.5009789	979.551
	10	A5	D	Feb. 25–26...	323.51	325.59	5.3	1.6	10.28	65	.5007740	.5007690	−9	+198	−3	+107	+170	−16	.5008017	.5008030	.5008024	979.559
	11	A5	D	Feb. 26......	321.12	322.53	5.1	1.8	10.98	66	.5007798	.5007763	−9	+168	−4	+107	+170	−16	.5008044	.5008072	.5008058	979.545
	12	A5	D	Feb. 26–27...	317.85	321.13	5.5	1.3	12.29	68	.5007877	.5007797	−9	+114	−4	+107	+170	−16	.5008069	.5008052	.5008061	979.544
	13	A6	D	Feb. 27......	332.11	335.60	4.9	1.7	13.23	69	.5007539	.5007460	−9	+74	−6	+107	+170	−16	.5007689	.5007673	.5007681	979.558
	14	A6	D	Feb. 27......	328.31	331.46	5.3	1.7	14.07	66	.5007627	.5007554	−10	+39	−3	+107	+170	−16	.5007744	.5007734	.5007739	979.535
	15	A6	D	Mar. 2–3.....	335.40	340.58	5.1	1.5	10.96	63	.5007465	.5007351	−8	+169	−1	+83	+162	−16	.5007692	.5007657	.5007674	979.561
	16	A6	D	Mar. 3.......	335.70	340.51	4.8	1.8	10.84	63	.5007458	.5007353	−9	+174	−1	+83	+162	−16	.5007689	.5007663	.5007676	979.560
	17	A5	D	Mar. 3.......	318.74	322.08	5.1	1.5	11.91	63	.5007856	.5007774	−8	+129	0	+83	+162	−16	.5008044	.5008041	.5008042	979.552
	18	A5	D	Mar. 3–4.....	318.99	322.16	4.9	1.5	11.83	62	.5007849	.5007772	−8	+133	+1	+83	+162	−16	.5008042	.5008044	.5008043	979.551
	19	A4	D	Mar. 4.......	260.88	262.76	5.0	2.1	11.91	62	.5009602	.5009533	−10	+129	+1	+83	+162	−16	.5009789	.5009799	.5009794	979.549
	20	A4	D	Mar. 4.......	259.66	261.33	5.1	1.9	12.29	66	.5009647	.5009585	−10	+114	−3	+83	+162	−16	.5009815	.5009832	.5009824	979.537
	21	A4	D	Mar. 4–5.....	259.52	261.38	4.9	1.3	12.49	65	.5009652	.5009583	−7	+105	−2	+83	+162	−16	.5009815	.5009825	.5009820	979.539
	22	A4	D	Mar. 5.......	259.94	261.78	5.1	2.0	12.62	57	.5009636	.5009569	−10	+100	+4	+83	+162	−16	.5009797	.5009809	.5009803	979.545
	23	A4	D	Mar. 5.......	258.15	259.78	5.5	2.0	13.34	64	.5009703	.5009642	−12	+70	−1	+83	+162	−16	.5009827	.5009845	.5009836	979.533
																						979.551 ±0.001
No. 95. New Madrid, Mo., Harold D. King.	1	A6	D	Mar. 19–20...	371.80	377.18	5.2	1.7	12.00	61	.5006733	.5006637	−10	+126	+1	+74	+154	−8	.5006916	.5006900	.5006908	979.860
	2	A6	D	Mar. 20......	373.71	378.08	5.2	1.8	11.73	59	.5006699	.5006621	−10	+137	+3	+74	+154	−8	.5006895	.5006897	.5006896	979.865
	3	A5	D	Mar. 20......	350.82	354.64	4.9	1.6	12.74	77	.5007137	.5007059	−8	+95	−14	+74	+154	−8	.5007276	.5007278	.5007277	979.851
	4	A5	D	Mar. 20–21...	349.12	352.95	5.4	2.0	13.53	63	.5007172	.5007093	−11	+62	0	+74	+154	−8	.5007289	.5007290	.5007290	979.846
	5	A4	D	Mar. 21......	281.52	283.62	4.8	1.6	13.45	61	.5008896	.5008830	−8	+65	+2	+74	+154	−8	.5009021	.5009035	.5009028	979.849
	6	A4	D	Mar. 21......	280.42	282.24	5.1	2.0	13.86	64	.5008931	.5008874	−10	+48	−1	+74	+154	−8	.5009034	.5009057	.5009046	979.842
																						979.852 ±0.002

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1823	Chronometer No. 1841	Initial	Final			Chronometer No. 1823	Chronometer No. 1841	Arc	Temperature	Pressure	Rate		Flexure	Chronometer No. 1823	Chronometer No. 1841	Mean		
																Chronometer No. 1823	Chronometer No. 1841						
				1911	s.	s.	mm.	mm.	° C.	mm.	s.	s.							s.	s.	s.	Dynes	Dynes
o. 96. Mena, Ark., Harold D. King.	1	A5	D	Mar. 27–28	310.72	314.22	5.2	1.9	16.08	65	0.5008059	0.5007969	−11	−45	−2	+38	+126	−11	0.5008028	0.5008026	0.5008027	979.558	979.551 ±0.001
	2	A5	D	Mar. 28	310.42	313.12	5.6	2.1	16.12	61	.5008067	.5007997	−12	−47	+2	+38	+126	−11	.5008037	.5008055	.5008046	979.550	
	3	A4	D	Mar. 28	254.14	256.83	5.0	1.9	16.62	59	.5009856	.5009753	−10	−68	+5	+38	+126	−11	.5009810	.5009795	.5009802	979.546	
	4	A4	D	Mar. 28–29	254.52	256.81	5.1	1.8	16.43	64	.5009841	.5009752	−10	−60	−1	+38	+126	−11	.5009797	.5009796	.5009796	979.548	
	5	A6	D	Mar. 29	324.16	327.66	5.2	1.6	16.32	64	.5007724	.5007642	−9	−55	−1	+38	+126	−11	.5007686	.5007692	.5007689	979.555	
	6	A6	D	Mar. 29	322.63	326.34	5.1	2.0	16.78	59	.5007761	.5007672	−10	−74	+5	+38	+126	−11	.5007709	.5007708	.5007708	979.547	
No. 97. Nacogdoches, Tex., Harold D. King.	1	A6	D	Apr. 4–5	307.12	310.72	4.9	1.7	17.98	62	.5008153	.5008059	−9	−125	+2	+22	+118	−10	.5008033	.5008035	.5008034	979.420	979.423 ±0.001
	2	A6	D	Apr. 5	308.13	311.62	5.2	1.9	17.96	62	.5008127	.5008035	−11	−124	+2	+22	+118	−10	.5008006	.5008010	.5008008	979.430	
	3	A5	D	Apr. 5	295.55	298.36	5.0	1.7	17.74	61	.5008474	.5008394	−9	−115	+3	+22	+118	−10	.5008365	.5008381	.5008373	979.422	
	4	A5	D	Apr. 5–6	294.16	298.60	5.1	1.9	18.08	59	.5008504	.5008386	−10	−129	+6	+22	+118	−10	.5008383	.5008361	.5008372	979.422	
	5	A4	D	Apr. 6	244.50	247.21	5.2	1.8	18.06	64	.5010246	.5010134	−10	−128	0	+22	+118	−10	.5010120	.5010104	.5010112	979.425	
	6	A4	D	Apr. 6	244.77	246.77	5.3	2.0	17.90	57	.5010234	.5010151	−11	−122	+5	+22	+118	−10	.5010118	.5010131	.5010124	979.420	
No. 98. Alpine, Tex., Harold D. King.	1	A6	D	Apr. 10–11	270.85	272.36	4.8	1.5	17.02	61	.5009248	.5009196	−8	−85	+3	−9	+20	−8	.5009141	.5009118	.5009130	978.991	978.990 ±0.001
	2	A6	D	Apr. 11	271.37	272.40	5.0	2.0	16.68	57	.5009229	.5009195	−10	−70	+6	−9	+20	−8	.5009138	.5009133	.5009136	978.989	
	3	A5	D	Apr. 11	261.08	262.70	4.5	1.8	16.96	66	.5009594	.5009535	−8	−82	−2	−9	+20	−8	.5009485	.5009455	.5009470	978.993	
	4	A5	D	Apr. 11–12	261.16	261.92	5.1	2.0	17.03	60	.5009591	.5009563	−10	−85	+4	−9	+20	−8	.5009483	.5009484	.5009484	978.988	
	5	A4	D	Apr. 12	221.20	221.72	5.0	1.8	17.06	64	.5011328	.5011301	−9	−86	0	−9	+20	−8	.5011216	.5011218	.5011217	978.993	
	6	A4	D	Apr. 12	220.72	221.44	5.3	2.0	17.17	61	.5011352	.5011315	−11	−91	+3	−9	+20	−8	.5011236	.5011228	.5011232	978.987	
No. 99. Farwell, Tex., Harold D. King.	1	A6	D	Apr. 15–16	303.77	305.02	5.0	1.8	12.72	67	.5008244	.5008210	−9	+96	−4	+24	+60	−8	.5008343	.5008345	.5008344	979.299	979.292 ±0.002
	2	A6	D	Apr. 16	303.58	305.01	4.8	1.8	12.70	61	.5008249	.5008210	−9	+96	+2	+24	+60	−8	.5008354	.5008351	.5008352	979.296	
	3	A5	D	Apr. 16	290.44	291.80	5.0	1.9	12.96	70	.5008623	.5008582	−10	+85	−7	+24	+60	−8	.5008707	.5008702	.5008704	979.293	
	4	A5	D	Apr. 16–17	290.66	291.98	4.8	1.9	13.11	65	.5008616	.5008577	−10	+79	−2	+24	+60	−8	.5008699	.5008696	.5008698	979.295	
	5	A4	D	Apr. 17	241.30	242.12	5.0	1.9	13.15	65	.5010382	.5010347	−10	+78	−2	+24	+60	−8	.5010464	.5010465	.5010464	979.287	
	6	A4	D	Apr. 17	241.04	241.57	4.9	1.7	13.30	60	.5010393	.5010371	−9	+71	+3	+24	+60	−8	.5010474	.5010488	.5010481	979.281	
No. 100. Guymon, Okla., Harold D. King.	1	A4	D	Apr. 21–22	251.90	254.04	5.0	1.7	19.04	62	.5009944	.5009860	−9	−169	+2	−17	+48	−10	.5009741	.5009722	.5009732	979.573	979.570 ±0.001
	2	A4	D	Apr. 22	252.32	254.26	5.2	1.9	19.08	62	.5009927	.5009852	−11	−171	+2	−17	+48	−10	.5009720	.5009710	.5009715	979.580	
	3	A5	D	Apr. 22	301.80	307.24	5.2	1.7	19.55	65	.5008216	.5008150	−10	−191	−1	−17	+48	−10	.5007987	.5007986	.5007986	979.573	
	4	A5	D	Apr. 22–23	301.43	307.10	5.4	1.7	19.67	63	.5008225	.5008154	−10	−196	+1	−17	+48	−10	.5007993	.5007987	.5007990	979.572	
	5	A6	D	Apr. 23	318.62	321.26	4.9	1.8	19.59	66	.5007859	.5007794	−9	−192	−1	−17	+48	−10	.5007630	.5007630	.5007630	979.578	
	6	A6	D	Apr. 23	318.72	321.14	5.3	1.8	19.24	61	.5007856	.5007797	−10	−177	+3	−17	+48	−10	.5007645	.5007651	.5007648	979.571	
	7	A6	D	Apr. 23–24	318.78	321.64	5.1	1.8	19.08	60	.5007855	.5007785	−9	−171	+4	−17	+48	−10	.5007652	.5007647	.5007649	979.570	
	8	A6	D	Apr. 24	319.66	322.00	5.1	1.7	18.92	55	.5007833	.5007776	−9	−164	+10	−17	+48	−10	.5007643	.5007651	.5007647	979.571	
	9	A5	D	Apr. 24	304.89	306.96	5.1	1.7	19.13	63	.5008213	.5008158	−9	−173	+1	−17	+48	−10	.5008005	.5008015	.5008010	979.564	
	10	A5	D	Apr. 24–25	304.75	306.77	5.1	1.8	19.24	59	.5008217	.5008163	−9	−177	+5	−17	+48	−10	.5008009	.5008020	.5008014	979.563	
	11	A4	D	Apr. 25	251.83	253.85	4.8	1.8	19.14	64	.5009947	.5009868	−9	−173	0	−17	+48	−10	.5009738	.5009724	.5009731	979.574	
	12	A4	D	Apr. 25	251.39	252.56	4.7	1.8	19.29	61	.5009964	.5009919	−9	−180	+4	−17	+48	−10	.5009752	.5009772	.5009762	979.562	
	13	A4	D	Apr. 25–26	251.25	252.84	5.3	1.5	19.30	61	.5009970	.5009907	−9	−180	+2	−17	+48	−10	.5009756	.5009758	.5009757	979.564	
	14	A4	D	Apr. 26	251.56	252.59	5.0	1.9	19.43	62	.5009958	.5009917	−9	−186	+2	−17	+48	−10	.5009738	.5009762	.5009750	979.566	
	15	A4	D	Apr. 26	250.60	252.40	4.9	1.8	19.99	58	.5009996	.5009925	−9	−209	+6	−17	+48	−10	.5009757	.5009751	.5009754	979.565	
No. 101. Helenwood, Tenn., T. L. Warner.	1	A6	D	May 10–11	345.12	349.36	5.0	1.4	19.69	56	.5007255	.5007166	−8	−197	+8	+19	+94	−11	.5007066	.5007052	.5007059	979.801	979.785 ±0.004
	2	A6	D	May 11	347.54	350.28	4.8	1.5	18.67	61	.5007204	.5007147	−8	−155	+3	+19	+94	−11	.5007052	.5007070	.5007061	979.800	
	3	A5	D	May 11	327.28	330.69	4.9	1.6	19.86	63	.5007650	.5007571	−8	−205	+1	+19	+94	−11	.5007446	.5007442	.5007444	979.785	
	4	A5	D	May 11–12	327.82	331.46	5.0	1.6	19.66	59	.5007638	.5007554	−8	−195	+5	+19	+94	−11	.5007448	.5007439	.5007444	979.785	
	5	A4	D	May 12	266.81	268.66	5.0	1.8	19.12	61	.5009388	.5009323	−9	−173	+4	+19	+94	−11	.5009218	.5009228	.5009223	979.772	
	6	A4	D	May 12	265.26	267.25	4.9	1.6	19.95	60	.5009443	.5009372	−8	−207	+4	+19	+94	−11	.5009240	.5009244	.5009242	979.765	

No. 103. Hughes, Tenn., T. L. Warner.	1	A6	D	May 17–18...	317.16	322.41	4.9	1.6	19.22	62	.5007895	.5007766	− 8	−177	+ 3	− 9	+122	− 13	.5007690	.5007692	.5007691	979.554	979.552 ±0.003
	2	A6	D	May 18......	318.98	323.20	5.1	1.8	18.87	58	.5007850	.5007747	− 9	−162	+ 6	− 9	+122	− 13	.5007663	.5007691	.5007677	979.559	
	3	A5	D	May 18......	305.00	310.36	5.1	1.6	19.34	58	.5008210	.5008068	− 8	−182	+ 6	− 9	+122	− 13	.5008004	.5007993	.5007998	979.569	
	4	A5	D	May 18–19...	305.38	311.48	5.1	1.5	18.99	56	.5008200	.5008039	− 8	−167	+ 8	− 9	+122	− 13	.5008011	.5007981	.5007996	979.569	
	5	A4	D	May 19......	250.66	253.98	5.0	1.8	19.03	61	.5009994	.5009863	− 9	−169	+ 3	− 9	+122	− 13	.5009797	.5009797	.5009797	979.548	
	6	A4	D	May 19......	250.01	253.14	5.3	1.9	19.41	56	.5010020	.5009895	− 11	−185	+ 8	− 9	+122	− 13	.5009810	.5009816	.5009813	979.542	
	7	A4	D	May 19–20...	249.52	252.98	5.1	1.8	19.61	58	.5010039	.5009902	− 9	−193	+ 6	− 9	+122	− 13	.5009821	.5009815	.5009818	979.540	
	8	A4	D	May 20......	249.95	253.08	5.1	2.0	19.66	58	.5010022	.5009898	− 10	−195	+ 6	− 9	+122	− 13	.5009801	.5009808	.5009804	979.545	
	9	A5	D	May 20......	301.24	306.08	5.0	1.5	20.29	58	.5008313	.5008181	− 8	−222	+ 6	− 9	+122	− 13	.5008067	.5008066	.5008066	979.542	
No. 104. Charleston, W. Va., T. L. Warner.	1	A6	D	May 26–27...	357.27	362.48	5.4	1.9	21.64	62	.5007008	.5006906	− 11	−278	+ 2	+ 8	+112	− 12	.5006717	.5006719	.5006718	979.934	979.935 ±0.001
	2	A6	D	May 27......	357.60	363.14	5.4	1.9	21.43	60	.5007001	.5006894	− 11	−270	+ 4	+ 8	+112	− 12	.5006720	.5006717	.5006718	979.931	
	3	A5	D	May 27......	340.30	345.30	4.9	1.8	21.70	66	.5007357	.5007251	− 9	−281	− 1	+ 8	+112	− 12	.5007062	.5007060	.5007061	979.935	
	4	A5	D	May 27–28...	341.82	346.02	5.0	2.0	21.57	61	.5007325	.5007236	− 10	−275	+ 3	+ 20	+104	− 12	.5007051	.5007046	.5007048	979.940	
	5	A4	D	May 28......	276.00	278.34	5.0	1.9	21.59	56	.5009074	.5008998	− 10	−276	+ 8	+ 20	+104	− 12	.5008804	.5008812	.5008808	979.935	
	6	A4	D	May 28......	275.84	278.48	5.2	1.7	21.46	56	.5009080	.5008994	− 10	−271	+ 8	+ 20	+104	− 12	.5008815	.5008813	.5008814	979.933	
No. 105. State College, Pa., T. L. Warner.	1	A6	D	June 8–9....	382.87	390.01	4.8	1.8	21.29	59	.5006538	.5006418	− 9	−264	+ 5	− 8	+ 93	− 16	.5006246	.5006227	.5006236	980.123	980.123 ±0.001
	2	A6	D	June 9......	383.92	389.78	5.0	1.9	21.15	57	.5006521	.5006423	− 10	−258	+ 7	− 8	+ 93	− 16	.5006236	.5006239	.5006238	980.123	
	3	A5	D	June 9......	362.28	367.96	5.4	1.9	21.65	70	.5006910	.5006804	− 11	−279	− 5	− 8	+ 93	− 16	.5006591	.5006586	.5006588	980.120	
	4	A5	D	June 9–10....	363.05	368.63	4.9	1.8	21.80	54	.5006896	.5006791	− 9	−285	+ 10	− 8	+ 93	− 16	.5006588	.5006584	.5006586	980.121	
	5	A4	D	June 10.....	290.48	293.12	4.9	1.7	21.76	60	.5008622	.5008543	− 9	−281	+ 4	− 8	+ 93	− 16	.5008309	.5008331	.5008320	980.126	
	6	A4	D	June 10.....	289.55	292.82	5.2	1.9	21.90	60	.5008619	.5008552	− 11	−289	+ 4	− 8	+ 93	− 16	.5008329	.5008333	.5008331	980.122	
Washington, D. C., Coast and Geodetic Survey Office, T. L. Warner.	5	A4	D	June 16.....	289.58	292.38	5.2	1.7	21.57	59	.5008648	.5008565	− 10	−275	+ 5	+ 14	+108	− 12	.5008370	.5008381	.5008376	....	
	6	A4	D	June 16.....	289.08	292.92	5.5	1.9	21.52	59	.5008663	.5008549	− 12	−273	+ 5	+ 14	+108	− 12	.5008385	.5008365	.5008375	....	
	7	A4	D	June 16–17..	289.52	292.78	5.4	2.3	21.56	57	.5008650	.5008554	− 12	−275	+ 7	+ 14	+108	− 12	.5008372	.5008370	.5008371	....	
	3	A5	D	June 15.....	362.15	366.83	5.0	1.9	21.71	64	.5006913	.5006824	− 10	−281	0	+ 14	+108	− 12	.5006624	.5006629	.5006626	....	
	4	A5	D	June 15–16..	363.46	368.48	5.0	1.8	21.60	59	.5006888	.5006794	− 9	−277	+ 5	+ 14	+108	− 12	.5006609	.5006609	.5006609	....	
	1	A6	D	June 14–15..	381.61	387.10	5.2	1.9	22.12	58	.5006560	.5006467	− 11	−298	+ 6	+ 14	+108	− 12	.5006259	.5006260	.5006260	....	
	2	A6	D	June 15.....	381.68	387.07	5.0	1.8	21.90	57	.5006558	.5006467	− 9	−289	+ 7	+ 14	+108	− 12	.5006269	.5006272	.5006270	....	
Washington, D. C., Coast and Geodetic Survey Office, T. L. Warner.	1	A4	D	June 27–28..	286.76	290.80	5.2	1.9	23.87	63	.5008733	.5008612	− 11	−372	+ 2	+ 18	+132	− 12	.5008358	.5008351	.5008354	....	
	2	A4	D	June 28.....	286.52	290.54	5.2	1.9	23.88	60	.5008740	.5008620	− 11	−372	+ 5	+ 18	+132	− 12	.5008368	.5008362	.5008365	....	
	3	A5	D	June 28.....	357.87	363.04	4.8	1.8	23.98	67	.5006996	.5006896	− 9	−376	− 2	+ 18	+132	− 12	.5006615	.5006629	.5006622	....	
	4	A5	D	June 28–29..	358.72	363.44	5.2	1.8	23.98	63	.5006979	.5006888	− 10	−376	+ 1	+ 39	+132	− 12	.5006621	.5006623	.5006622	....	
	5	A6	D	June 29.....	377.16	382.66	5.0	1.9	23.98	62	.5006637	.5006542	− 10	−376	+ 3	+ 39	+132	− 12	.5006281	.5006279	.5006280	....	
	6	A6	D	June 29.....	376.31	381.27	4.9	1.6	23.92	68	.5006652	.5006566	− 8	−374	− 3	+ 39	+132	− 12	.5006294	.5006301	.5006297	....	
No. 107. Prentice, Wis., T. L. Warner.	1	A6	D	July 12–13...	472.70	479.20	4.8	1.8	18.30	56	.5005295	.5005223	− 9	−128	+ 8	− 20	+ 54	− 12	.5005124	.5005126	.5005125	980.564	980.561 ±0.001
	2	A6	D	July 13......	472.72	479.68	4.9	1.9	18.09	55	.5005294	.5005217	− 10	−129	+ 8	− 20	+ 54	− 12	.5005131	.5005128	.5005130	980.562	
	3	A5	D	July 13......	443.98	449.92	5.0	2.0	18.00	57	.5005637	.5005563	− 10	−126	+ 6	− 20	+ 54	− 12	.5005475	.5005475	.5005475	980.562	
	4	A5	D	July 13–14...	445.18	450.45	4.8	1.9	17.90	58	.5005622	.5005557	− 10	−122	+ 6	− 9	+ 54	− 12	.5005475	.5005473	.5005474	980.563	
	5	A4	D	July 14......	339.94	342.52	5.1	1.9	17.65	56	.5007365	.5007310	− 10	−111	+ 7	− 9	+ 54	− 12	.5007230	.5007238	.5007234	980.560	
	6	A4	D	July 14......	339.50	342.54	5.0	1.9	17.51	56	.5007375	.5007309	− 10	−105	+ 8	− 9	+ 54	− 12	.5007247	.5007244	.5007246	980.555	
No. 108. Fergus Falls, Minn., T. L. Warner.	1	A6	D	July 20–21...	487.64	496.66	4.9	1.8	18.79	55	.5005132	.5005038	− 9	−159	+ 9	+ 7	+ 88	− 13	.5004967	.5004954	.5004960	980.629	980.621 ±0.001
	2	A6	D	July 21......	489.54	495.82	4.8	1.8	18.18	57	.5005112	.5005047	− 9	−133	+ 7	+ 7	+ 88	− 13	.5004971	.5004987	.5004979	980.621	
	3	A5	D	July 21......	455.63	462.82	5.3	1.9	18.51	53	.5005492	.5005407	− 11	−147	+ 10	+ 7	+ 88	− 13	.5005338	.5005334	.5005336	980.617	
	4	A5	D	July 21–22...	457.18	463.43	5.0	1.8	18.63	54	.5005474	.5005401	− 9	−152	+ 9	+ 3	+ 74	− 13	.5005312	.5005310	.5005311	980.626	
	9	A5	D	July 23......	455.20	462.98	5.0	1.8	18.38	58	.5005497	.5005405	− 9	−142	+ 6	+ 3	+ 74	− 13	.5005342	.5005321	.5005332	980.618	
	5	A4	D	July 22......	345.94	349.20	4.9	1.9	18.49	57	.5007237	.5007169	− 10	−146	+ 7	+ 3	+ 74	− 13	.5007078	.5007081	.5007080	980.620	
	6	A4	D	July 22......	345.06	348.70	5.2	1.9	18.61	58	.5007256	.5007180	− 11	−151	+ 6	+ 3	+ 74	− 13	.5007090	.5007085	.5007088	980.617	
	7	A4	D	July 22–22...	345.56	348.80	5.1	1.8	18.89	54	.5007245	.5007178	− 9	−163	+ 9	+ 3	+ 74	− 13	.5007072	.5007076	.5007074	980.622	
	8	A4	D	July 23......	345.08	347.62	5.3	1.9	18.70	59	.5007255	.5007202	− 11	−155	+ 5	+ 3	+ 74	− 13	.5007084	.5007102	.5007093	980.615	
No. 109. Sheridan, Wyo., T. L. Warner.	1	A6	D	July 27–28...	414.62	419.44	5.2	1.6	17.59	57	.5006037	.5005968	− 9	−109	+ 7	− 25	+ 43	− 12	.5005889	.5005888	.5005888	980.265	980.251 ±0.002
	2	A6	D	July 28......	414.10	418.38	5.4	1.6	17.33	58	.5006044	.5005982	− 9	− 98	+ 5	− 25	+ 43	− 12	.5005905	.5005911	.5005908	980.257	
	11	A6	D	July 31......	411.10	412.24	5.2	1.8	17.69	66	.5006089	.5006072	− 10	−113	− 2	− 16	+ 24	− 12	.5005936	.5005959	.5005948	980.242	
	12	A6	D	July 31......	410.38	412.12	5.0	2.0	17.66	62	.5006099	.5006074	− 10	−111	+ 2	− 16	+ 24	− 12	.5005952	.5005967	.5005960	980.237	
	3	A5	D	July 28......	389.15	393.65	5.2	1.8	17.62	62	.5006433	.5006359	− 10	−110	+ 2	− 25	+ 43	− 12	.5006278	.5006272	.5006275	980.249	
	4	A5	D	July 28–29...	391.23	395.62	5.1	1.7	17.55	56	.5006398	.5006328	− 9	−107	+ 7	− 16	+ 24	− 12	.5006261	.5006231	.5006246	980.260	
	9	A5	D	July 30......	388.18	390.20	5.2	1.8	17.82	63	.5006448	.5006415	− 10	−118	+ 1	− 16	+ 24	− 12	.5006293	.5006300	.5006296	980.263	
	10	A5	D	July 30–31...	389.80	391.09	5.0	1.7	17.75	65	.5006422	.5006400	− 9	−115	− 1	− 16	+ 24	− 12	.5006269	.5006287	.5006278	980.247	
	5	A4	D	July 29......	306.70	308.49	5.4	2.0	17.40	56	.5008165	.5008117	− 11	−101	+ 7	− 16	+ 24	− 12	.5008032	.5008024	.5008028	980.249	
	6	A4	D	July 29......	306.17	308.28	5.3	1.0	17.53	63	.5008179	.5008123	− 7	−106	+ 1	− 16	+ 24	− 12	.5008039	.5008023	.5008031	980.248	
	7	A4	D	July 29–30...	306.84	308.83	4.8	1.8	17.62	54	.5008161	.5008108	− 9	−110	+ 9	− 16	+ 24	− 12	.5008023	.5008010	.5008016	980.253	
	8	A4	D	July 30......	306.06	307.25	5.3	1.8	17.63	66	.5008182	.5008150	− 10	−110	− 2	− 16	+ 24	− 12	.5008032	.5008040	.5008036	980.246	

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval: Chronometer No. 1823	Coincidence interval: Chronometer No. 1841	Total arc: Initial	Total arc: Final	Temperature	Pressure	Period uncorrected: Chronometer No. 1823	Period uncorrected: Chronometer No. 1841	Corrections (seventh decimal place): Arc	Corrections: Temperature	Corrections: Pressure	Corrections: Rate: Chronometer No. 1823	Corrections: Rate: Chronometer No. 1841	Corrections: Flexure	Period corrected: Chronometer No. 1823	Period corrected: Chronometer No. 1841	Period corrected: Mean	g	Mean g
				1911	s.	s.	mm.	mm.	° C.	mm.	s.	s.							s.	s.	s.	Dynes	Dynes
No. 110. Boulder, Mont., T. L. Warner.	1	A6	D	Aug. 7-8....	421.60	422.73	5.2	1.8	14.89	51	0.5005937	0.5005921	− 10	+ 5	+ 12	− 16	− 4	− 12	0.5005916	0.5005912	0.5005914	980.255	980.251 ±0.001
	2	A6	D	Aug. 8......	420.51	421.22	5.1	1.8	14.79	63	.5005952	.5005942	− 9	+ 9	0	− 16	− 4	− 12	.5005924	.5005926	.5005925	980.251	
	3	A5	D	Aug. 8......	395.83	397.68	5.0	1.9	15.11	61	.5006324	.5006294	− 10	− 5	+ 2	− 16	− 4	− 12	.5006283	.5006265	.5006274	980.249	
	4	A5	D	Aug. 8-9....	397.03	398.06	5.0	1.8	15.15	59	.5006305	.5006288	− 9	− 6	+ 4	− 16	− 4	− 12	.5006266	.5006261	.5006264	980.253	
	9	A5	D	Aug. 10.....	396.74	399.34	5.2	1.8	14.77	61	.5006309	.5006268	− 10	+ 10	+ 2	− 16	− 4	− 12	.5006283	.5006254	.5006268	980.252	
	5	A4	D	Aug. 9......	310.88	310.33	5.4	1.9	15.09	60	.5008055	.5008069	− 11	− 4	+ 3	− 16	− 4	− 12	.5008015	.5008041	.5008028	980.249	
	6	A4	D	Aug. 9......	310.46	310.97	5.2	1.7	15.01	62	.5008065	.5008053	− 10	0	+ 1	− 16	− 4	− 12	.5008028	.5008028	.5008028	980.249	
	7	A4	D	Aug. 9-10....	311.64	311.87	5.0	1.9	14.92	54	.5008035	.5008029	− 10	+ 3	+ 9	− 16	− 4	− 12	.5008009	.5008015	.5008012	980.255	
	8	A4	D	Aug. 10.....	311.66	311.43	5.1	1.8	14.67	58	.5008034	.5008040	− 9	+ 14	+ 5	− 16	− 4	− 12	.5008016	.5008034	.5008025	980.250	
No. 111. Skykomish, Wash., T. L. Warner.	1	A6	D	Aug. 15-16..	524.66	532.72	4.9	1.9	14.78	66	.5004769	.5004697	− 10	+ 9	− 3	+ 6	+ 81	− 22	.5004749	.5004752	.5004750	980.711	980.706 ±0.001
	2	A6	D	Aug. 16.....	528.15	536.04	4.9	1.9	14.13	61	.5004738	.5004668	− 10	+ 36	+ 2	+ 6	+ 81	− 22	.5004750	.5004755	.5004752	980.711	
	3	A5	D	Aug. 16.....	484.65	493.04	5.0	1.9	15.21	61	.5005164	.5005076	− 10	− 10	+ 2	+ 6	+ 81	− 22	.5005130	.5005117	.5005124	980.699	
	4	A5	D	Aug. 16-17..	485.16	492.23	5.0	2.0	15.75	55	.5005158	.5005084	− 10	− 31	+ 8	+ 6	+ 81	− 22	.5005109	.5005110	.5005110	980.705	
	5	A4	D	Aug. 17.....	363.12	366.59	5.2	1.9	15.31	62	.5006895	.5006829	− 11	− 13	+ 1	+ 6	+ 81	− 22	.5006856	.5006865	.5006860	980.706	
	6	A4	D	Aug. 17.....	361.40	365.90	4.9	1.9	15.58	62	.5006927	.5006842	− 10	− 24	+ 1	+ 6	+ 81	− 22	.5006878	.5006868	.5006873	980.701	
No. 112. Olympia, Wash., T. L. Warner.	1	A6	D	Aug. 21-22..	554.84	566.34	5.0	1.4	15.89	38	.5004510	.5004418	− 8	− 37	− 4	− 5	+ 87	− 13	.5004443	.5004443	.5004443	980.832	980.824 ±0.002
	2	A6	D	Aug. 22.....	557.97	567.50	5.0	1.4	15.49	58	.5004484	.5004409	− 8	− 21	+ 5	− 5	+ 87	− 13	.5004442	.5004459	.5004450	980.828	
	3	A5	D	Aug. 22.....	513.96	525.42	5.0	1.6	15.61	58	.5004868	.5004762	− 8	− 26	+ 5	− 5	+ 87	− 13	.5004821	.5004807	.5004814	980.821	
	4	A5	D	Aug. 22-23..	515.64	526.96	5.0	1.7	15.66	56	.5004853	.5004748	− 9	− 28	+ 7	− 3	+ 89	− 13	.5004807	.5004794	.5004800	980.827	
	5	A4	D	Aug. 23.....	378.56	383.48	5.1	1.7	15.62	57	.5006613	.5006527	− 9	− 26	+ 6	− 3	+ 89	− 13	.5006568	.5006574	.5006571	980.819	
	6	A4	D	Aug. 23.....	377.48	382.72	5.2	1.9	15.65	58	.5006631	.5006541	− 11	− 27	+ 5	− 3	+ 89	− 13	.5006582	.5006584	.5006583	980.815	
No. 113. Heppner, Oreg., T. L. Warner.	1	A6	D	Aug. 27-28...	444.74	451.22	4.9	1.7	18.52	59	.5005628	.5005546	− 9	−147	+ 5	− 21	+ 49	− 12	.5005444	.5005432	.5005438	.980.442	980.436 ±0.001
	2	A6	D	Aug. 28.....	445.42	449.58	5.2	1.9	18.30	58	.5005619	.5005567	− 11	−138	+ 6	− 21	+ 49	− 12	.5005443	.5005461	.5005452	.980.436	
	3	A5	D	Aug. 28.....	417.26	422.60	5.3	1.9	18.57	58	.5005999	.5005923	− 11	−150	+ 6	− 21	+ 49	− 12	.5005811	.5005805	.5005808	.980.432	
	4	A5	D	Aug. 28-29...	418.28	423.21	4.9	1.8	18.90	53	.5005984	.5005914	− 9	−163	+ 10	− 15	+ 53	− 12	.5005795	.5005793	.5005794	980.437	
	5	A4	D	Aug. 29.....	323.42	325.52	5.4	1.9	18.72	58	.5007742	.5007692	− 11	−156	+ 6	− 15	+ 53	− 12	.5007554	.5007572	.5007563	.980.431	
	6	A4	D	Aug. 29.....	323.40	327.24	5.0	1.9	18.60	54	.5007742	.5007651	− 10	−151	+ 10	− 15	+ 53	− 12	.5007564	.5007541	.5007552	.980.435	
No. 114. Truckee, Cal., T. L. Warner.	1	A6	D	Sept. 6-7....	333.10	340.64	5.0	1.7	12.03	61	.5007516	.5007350	− 9	+124	+ 1	0	+149	− 15	.5007617	.5007600	.5007608	979.592	979.584 ±0.002
	2	A6	D	Sept. 7......	334.46	340.71	5.1	1.8	11.55	54	.5007486	.5007349	− 9	+145	+ 8	0	+149	− 15	.5007615	.5007627	.5007621	979.587	
	3	A5	D	Sept. 7......	317.42	324.00	4.9	1.9	12.07	57	.5007888	.5007728	− 10	+123	+ 5	0	+149	− 15	.5007991	.5007980	.5007986	979.579	
	4	A5	D	Sept. 7-8....	318.04	324.34	4.8	1.8	12.15	58	.5007873	.5007720	− 9	+119	+ 4	0	+149	− 15	.5007972	.5007968	.5007970	979.586	
	5	A4	D	Sept. 8......	260.36	263.98	5.2	1.8	11.89	58	.5009621	.5009489	− 10	+130	+ 4	0	+149	− 15	.5009730	.5009747	.5009738	979.580	
	6	A4	D	Sept. 8......	259.66	263.73	5.0	2.0	12.16	58	.5009647	.5009497	− 10	+119	+ 4	0	+149	− 15	.5009745	.5009744	.5009744	979.578	
No. 115. Winnemucca, Nev., T. L. Warner.	1	A6	D	Sept. 12-13..	354.51	363.92	5.0	1.6	16.01	55	.5007062	.5006880	− 8	− 42	+ 8	− 41	+135	− 17	.5006962	.5006956	.5006959	979.846	979.843 ±0.001
	2	A6	D	Sept. 13.....	356.88	365.58	5.3	1.8	14.91	58	.5007015	.5006847	− 10	+ 4	+ 5	− 41	+135	− 17	.5006956	.5006964	.5006960	979.846	
	3	A5	D	Sept. 13.....	337.24	345.52	5.4	1.8	15.49	60	.5007424	.5007246	− 10	− 21	+ 3	− 41	+135	− 17	.5007338	.5007336	.5007337	979.833	
	4	A5	D	Sept. 13-14..	339.74	348.53	5.2	1.8	14.99	55	.5007369	.5007183	− 10	0	+ 8	− 41	+135	− 17	.5007309	.5007299	.5007304	979.846	
	5	A4	D	Sept. 14.....	276.87	281.72	5.3	2.0	13.44	56	.5009046	.5008890	− 11	+ 65	+ 7	− 41	+135	− 17	.5009049	.5009069	.5009059	979.845	
	6	A4	D	Sept. 14.....	274.72	280.50	5.3	1.8	14.45	56	.5009117	.5008929	− 10	+ 23	+ 7	− 41	+135	− 17	.5009079	.5009067	.5009073	979.840	
No. 116. Ely, Nev., T. L. Warner.	1	A6	D	Sept. 18-19..	316.96	323.90	5.0	1.7	14.99	60	.5007900	.5007730	− 9	0	+ 3	− 51	+106	− 13	.5007830	.5007817	.5007824	979.507	979. [illegible] ±0. [illegible]
	2	A6	D	Sept. 19.....	316.74	323.36	5.1	1.8	14.97	61	.5007905	.5007743	− 9	+ 1	+ 2	− 51	+106	− 13	.5007835	.5007830	.5007832	979.504	
	3	A5	D	Sept. 19.....	301.48	307.48	5.4	2.0	15.63	58	.5008306	.5008144	− 11	− 26	+ 5	− 51	+106	− 13	.5008210	.5008205	.5008208	979.492	
	4	A5	D	Sept. 19-20..	302.50	308.32	5.4	1.8	15.71	55	.5008278	.5008122	− 10	− 30	+ 8	− 51	+106	− 13	.5008182	.5008183	.5008182	979.503	
	5	A4	D	Sept. 20.....	249.78	253.32	5.2	1.9	15.62	58	.5010029	.5009888	− 11	− 26	+ 5	− 51	+106	− 13	.5009933	.5009949	.5009941	979.500	
	6	A4	D	Sept. 20.....	249.32	253.26	5.4	2.0	15.70	56	.5010047	.5009891	− 11	− 29	+ 8	− 51	+106	− 13	.5009951	.5009952	.5009952	979.496	

No. 117. Guernsey, Wyo., T. L. Warner.	1	A6	D	Sept. 26-27..	371.00	379.45	5.1	1.8	17.19	58	.5006748	.5006597	− 9	− 92	+ 6	− 42	+ 93	− 12	.5006599	.5006583	.5006591	979.990	979.988 ±0.001
	2	A6	D	Sept. 27......	373.80	381.14	5.1	1.9	16.24	54	.5006697	.5006568	− 10	− 52	+ 9	− 42	+ 93	− 12	.5006590	.5006596	.5006593	979.989	
	3	A5	D	Sept. 27......	353.44	361.62	5.4	2.0	16.62	55	.5007083	.5006923	− 11	− 68	+ 8	− 42	+ 93	− 12	.5006958	.5006933	.5006946	979.986	
	4	A5	D	Sept. 27-28..	354.70	361.55	5.0	1.8	16.67	54	.5007058	.5006924	− 9	− 70	+ 9	− 42	+ 93	− 12	.5006934	.5006935	.5006934	979.991	
	5	A4	D	Sept. 28......	284.10	287.36	5.2	1.9	16.73	56	.5008815	.5008715	− 11	− 72	+ 7	− 42	+ 93	− 12	.5008685	.5008720	.5008702	979.985	
	6	A4	D	Sept. 28......	283.39	287.96	5.3	1.8	16.90	60	.5008837	.5008697	− 10	− 80	+ 4	− 42	+ 93	− 12	.5008697	.5008692	.5008694	979.988	
No. 118. Pierre, S. Dak., T. L. Warner.	1	A6	D	Oct. 3-4......	444.90	460.34	5.4	1.4	17.96	58	.5005625	.5005437	− 9	−124	+ 5	− 35	+172	− 9	.5005453	.5005472	.5005462	980.432	980.426 ±0.001
	2	A6	D	Oct. 4........	445.30	459.90	5.1	1.9	17.65	59	.5005620	.5005442	− 10	−111	+ 5	− 35	+172	− 9	.5005460	.5005489	.5005474	980.427	
	7	A6	D	Oct. 5-6......	440.02	457.00	5.1	1.8	18.70	57	.5005688	.5005476	− 9	−155	+ 6	− 35	+172	− 9	.5005486	.5005481	.5005484	980.423	
	8	A6	D	Oct. 6........	441.87	457.21	5.4	1.9	18.30	58	.5005664	.5005173	− 11	−138	+ 6	− 35	+172	− 9	.5005477	.5005493	.5005485	980.423	
	9	A6	D	Oct. 6........	438.48	457.34	4.9	1.8	18.98	56	.5005708	.5005472	− 9	−167	+ 7	− 35	+172	− 9	.5005495	.5005466	.5005480	980.425	
	3	A5	D	Oct. 4........	415.92	431.94	5.2	1.9	18.06	58	.5006018	.5005795	− 11	−128	+ 6	− 35	+172	− 9	.5005841	.5005825	.5005833	980.422	
	4	A5	D	Oct. 4-5......	419.64	435.02	5.0	2.0	17.71	56	.5005965	.5005754	− 10	−114	+ 7	− 35	+172	− 9	.5005804	.5005800	.5005802	980.434	
	5	A4	D	Oct. 5........	324.16	332.72	5.1	1.8	17.71	58	.5007724	.5007525	− 9	−114	+ 6	− 35	+172	− 9	.5007563	.5007571	.5007567	980.429	
	6	A4	D	Oct. 5........	320.85	330.81	5.2	1.8	18.50	60	.5007804	.5007569	− 10	−147	+ 4	− 35	+172	− 9	.5007607	.5007579	.5007593	980.419	
No. 119. Fort Dodge, Iowa, T. L. Warner.	1	A6	D	Oct. 10-11...	419.96	432.04	5.3	1.7	18.92	59	.5005960	.5005793	− 10	−164	+ 5	− 20	+162	− 10	.5005761	.5005776	.5005768	980.312	980.310 ±0.001
	2	A6	D	Oct. 11......	421.54	432.50	5.0	1.9	18.36	60	.5005938	.5005787	− 10	−141	+ 3	− 20	+162	− 10	.5005760	.5005791	.5005776	980.309	
	3	A5	D	Oct. 11......	394.44	407.39	5.4	2.0	19.06	58	.5006346	.5006144	− 11	−170	+ 6	− 20	+162	− 10	.5006141	.5006121	.5006131	980.305	
	4	A5	D	Oct. 11-12...	396.42	408.48	5.2	1.9	18.93	58	.5006315	.5006128	− 11	−165	+ 6	− 20	+162	− 10	.5006115	.5006110	.5006112	980.313	
	9	A5	D	Oct. 13......	392.72	405.74	5.2	2.1	19.67	57	.5006374	.5006169	− 11	−196	+ 7	− 20	+162	− 10	.5006144	.5006121	.5006132	980.305	
	5	A4	D	Oct. 12......	310.66	317.94	5.2	1.9	18.69	59	.5008060	.5007875	− 11	−155	+ 5	− 20	+162	− 10	.5007869	.5007866	.5007868	980.311	
	6	A4	D	Oct. 12......	309.35	316.88	5.0	1.8	19.23	57	.5008094	.5007902	− 9	−177	+ 7	− 20	+162	− 10	.5007885	.5007875	.5007880	980.306	
	7	A4	D	Oct. 12-13...	310.07	317.46	5.3	2.0	19.30	55	.5008076	.5007887	− 11	−180	+ 9	− 20	+162	− 10	.5007864	.5007857	.5007860	980.315	
	8	A4	D	Oct. 13......	310.04	317.00	5.4	1.8	19.22	59	.5008077	.5007899	− 10	−177	+ 5	− 20	+162	− 10	.5007865	.5007869	.5007867	980.312	
No. 120. Keithsburg, Ill., T. L. Warner.	1	B4	D	Oct. 17-18...	306.54	313.88	5.0	1.9	18.88	52	.5008169	.5007978	− 10	−163	+ 12	− 23	+173	− 15	.5007970	.5007975	.5007972	980.218	980.210 ±0.001
	2	B4	D	Oct. 18......	306.99	313.61	4.9	1.9	18.34	52	.5008157	.5007985	− 10	−149	+ 11	− 23	+173	− 15	.5007980	.5008004	.5007992	980.211	
	3	B5	D	Oct. 18......	346.18	356.89	5.2	1.9	19.42	64	.5007232	.5007015	− 11	−185	0	− 23	+173	− 15	.5006998	.5006977	.5006988	980.203	
	4	B5	D	Oct. 18-19...	348.80	358.69	5.5	2.2	19.14	51	.5007178	.5006979	− 13	−174	+ 12	− 23	+173	− 15	.5006965	.5006962	.5006964	980.213	
	5	B6	D	Oct. 19......	360.52	370.42	4.9	1.9	18.02	61	.5006944	.5006759	− 10	−127	+ 3	− 23	+173	− 15	.5006772	.5006783	.5006778	980.209	
	6	B6	D	Oct. 19......	358.58	369.95	4.9	1.9	18.32	64	.5006981	.5006767	− 10	−139	0	− 23	+173	− 15	.5006794	.5006776	.5006785	980.207	
No. 121. Grand Rapids, Mich., T. L. Warner.	1	B4	D	Oct. 27-28...	323.79	330.44	5.0	1.8	18.54	53	.5007733	.5007577	− 9	−148	+ 10	+ 6	+160	− 8	.5007584	.5007582	.5007583	980.371	980.371 ±0.001
	2	B4	D	Oct. 28......	326.36	332.68	4.7	2.0	17.30	53	.5007672	.5007526	− 9	− 96	+ 10	+ 6	+160	− 8	.5007575	.5007583	.5007579	980.372	
	3	B5	D	Oct. 28......	372.12	381.47	5.1	1.9	18.28	65	.5006728	.5006562	− 10	−138	− 1	+ 6	+160	− 8	.5006577	.5006565	.5006571	980.367	
	4	B5	D	Oct. 28-29...	371.92	380.54	5.1	1.9	18.88	60	.5006731	.5006578	− 10	−163	+ 4	+ 6	+160	− 8	.5006560	.5006561	.5006560	980.371	
	5	B6	D	Oct. 29......	386.41	395.30	5.2	1.9	17.86	51	.5006478	.5006332	− 11	−120	+ 12	+ 6	+160	− 8	.5006357	.5006365	.5006361	980.373	
	6	B6	D	Oct. 29......	387.96	398.54	5.2	2.2	16.95	49	.5006452	.5006281	− 12	− 82	+ 14	+ 6	+160	− 8	.5006370	.5006353	.5006362	980.373	
No. 122. Angola, Ind., T. L. Warner.	1	B4	D	Nov. 2-3....	316.65	324.34	4.9	1.7	15.03	57	.5007908	.5007720	− 9	− 1	+ 6	+ 25	+200	− 10	.5007919	.5007906	.5007912	980.242	980.243 ±0.001
	2	B4	D	No 3......	319.89	326.68	5.2	1.8	13.78	58	.5007827	.5007664	− 10	+ 51	+ 5	+ 25	+200	− 10	.5007888	.5007900	.5007894	980.249	
	11	B4	D	Nov. 6......	321.06	328.11	5.0	1.9	12.86	63	.5007799	.5007631	− 10	+ 90	0	+ 25	+200	− 10	.5007894	.5007901	.5007898	980.248	
	12	B4	D	Nov. 6......	317.80	325.38	5.0	1.9	13.82	57	.5007879	.5007695	− 10	+ 49	+ 6	+ 25	+200	− 10	.5007939	.5007930	.5007934	980.233	
	13	B4	D	Nov. 6-7....	316.94	323.85	4.8	1.8	14.86	51	.5007900	.5007732	− 9	+ 6	+ 12	+ 25	+200	− 10	.5007924	.5007931	.5007928	980.236	
	14	B4	D	Nov. 7......	318.15	324.69	5.0	1.8	14.42	51	.5007870	.5007711	− 9	+ 24	+ 11	+ 25	+200	− 10	.5007911	.5007927	.5007919	980.239	
	3	B5	D	Nov. 3......	363.36	373.62	5.2	1.8	14.76	56	.5006890	.5006701	− 10	+ 10	+ 7	+ 25	+200	− 10	.5006912	.5006898	.5006905	980.236	
	4	B5	D	Nov. 3-4....	364.43	373.04	5.2	1.8	14.89	60	.5006869	.5006711	− 10	+ 5	+ 4	+ 25	+200	− 10	.5006883	.5006900	.5006892	980.241	
	9	B5	D	Nov. 5......	368.72	379.18	5.0	1.8	12.95	63	.5006790	.5006602	− 9	+ 86	0	+ 25	+200	− 10	.5006882	.5006869	.5006876	980.247	
	10	B5	D	Nov. 5-6....	371.12	380.50	5.0	1.9	12.80	51	.5006746	.5006579	− 10	+ 92	+ 11	+ 25	+200	− 10	.5006854	.5006862	.5006858	980.254	
	15	B5	D	Nov. 7......	361.56	372.07	5.4	1.9	15.25	59	.5006924	.5006729	− 11	− 10	+ 4	+ 25	+200	− 10	.5006922	.5006902	.5006912	980.233	
	16	B5	D	Nov 7......	360.78	370.94	5.2	2.4	15.90	60	.5006939	.5006749	− 13	− 38	+ 3	+ 25	+200	− 10	.5006906	.5006891	.5006898	980.239	
	5	B6	D	Nov 4......	377.91	386.90	5.1	1.8	14.01	57	.5006624	.5006470	− 9	+ 41	+ 6	+ 25	+200	− 10	.5006677	.5006698	.5006688	980.244	
	6	B6	D	Nov. 4......	376.56	388.00	5.3	1.8	13.89	61	.5006648	.5006452	− 10	+ 47	+ 2	+ 25	+200	− 10	.5006702	.5006681	.5006692	980.243	
	7	B6	D	Nov. 4-5....	378.39	388.92	5.2	1.9	13.90	57	.5006616	.5006437	− 11	+ 46	+ 6	+ 25	+200	− 10	.5006672	.5006668	.5006670	980.251	
	8	B6	D	Nov. 5......	379.62	390.22	5.0	1.8	13.34	60	.5006595	.5006415	− 9	+ 70	+ 3	+ 25	+200	− 10	.5006674	.5006669	.5006672	980.250	
No. 123. Albany, N. Y., T. L. Warner.	1	B4	D	Nov. 16-17..	330.32	339.02	4.8	1.7	13.58	61	.5007580	.5007385	− 9	+ 59	+ 2	+ 29	+227	− 17	.5007644	.5007647	.5007646	980.346	980.343 ±0.001
	2	B4	D	Nov. 17.....	332.17	340.80	5.1	1.8	12.75	57	.5007538	.5007346	− 9	+ 94	+ 5	+ 29	+227	− 17	.5007640	.5007646	.5007643	980.347	
	3	B5	D	Nov. 17.....	382.91	395.74	5.2	1.9	12.61	52	.5006538	.5006325	− 11	+100	+ 10	+ 29	+227	− 17	.5006649	.5006634	.5006642	980.339	
	4	B5	D	Nov. 17-18..	385.00	396.94	5.0	1.8	12.37	53	.5006502	.5006306	− 9	+110	+ 9	+ 29	+227	− 17	.5006624	.5006626	.5006625	980.345	
	5	B6	D	Nov. 18.....	396.10	408.66	5.3	1.8	12.39	51	.5006320	.5006125	− 10	+109	+ 11	+ 29	+227	− 17	.5006442	.5006445	.5006444	980.340	
	6	B6	D	Nov. 18.....	394.62	407.95	5.0	1.9	12.70	55	.5006344	.5006136	− 10	+ 96	+ 7	+ 29	+227	− 17	.5006449	.5006439	.5006444	980.340	
No. 124. Port Jervis, N. Y., T. L. Warner.	1	B4	D	Nov. 22-23..	333.68	342.34	5.0	1.8	8.70	52	.5007503	.5007313	− 9	+264	+ 10	+ 70	+250	− 11	.5007827	.5007817	.5007822	980.230	980.221 ±0.002
	2	B4	D	Nov. 23.....	336.16	344.16	5.2	1.6	7.62	73	.5007448	.5007275	− 9	+309	− 11	+ 70	+250	− 11	.5007796	.5007803	.5007800	980.239	
	3	B5	D	Nov. 23.....	379.10	389.70	5.1	1.9	8.10	66	.5006603	.5006423	− 10	+289	− 4	+ 70	+250	− 11	.5006937	.5006937	.5006937	980.223	
	4	B5	D	Nov. 23-24..	377.92	388.00	4.9	1.7	8.94	59	.5006624	.5006452	− 9	+254	+ 3	+ 70	+250	− 11	.5006931	.5006939	.5006935	980.224	
	9	B5	D	Nov. 25.....	378.54	389.39	5.0	1.9	8.46	52	.5006613	.5006428	− 10	+274	+ 9	+ 70	+250	− 11	.5006945	.5006940	.5006942	980.221	
	5	B6	D	Nov. 24.....	387.50	398.30	5.1	1.9	9.10	56	.5006460	.5006285	− 10	+247	+ 6	+ 70	+250	− 11	.5006762	.5006767	.5006764	980.215	
	6	B6	D	Nov. 24.....	384.20	395.65	5.2	1.8	9.76	61	.5006516	.5006327	− 10	+220	+ 1	+ 70	+250	− 11	.5006786	.5006777	.5006782	980.207	
	7	B6	D	Nov. 24-25..	384.82	396.13	5.0	1.8	9.92	60	.5006505	.5006319	− 9	+213	+ 2	+ 70	+250	− 11	.5006770	.5006764	.5006767	980.213	
	8	B6	D	Nov. 25.....	386.66	397.34	5.2	1.8	9.38	63	.5006474	.5006300	− 10	+235	− 1	+ 70	+250	− 11	.5006757	.5006763	.5006760	980.216	

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1823	Chronometer No. 1841	Initial	Final			Chronometer No. 1823	Chronometer No. 1841	Arc	Temperature	Pressure	Rate		Flexure	Chronometer No. 1823	Chronometer No. 1841	Mean		
																Chronometer No. 1823	Chronometer No. 1841						
				1912	s.	s.	mm.	mm.	° C.	mm.	s.	s.							s.	s.	s.	Dynes	Dynes
Washington, D. C., Coast and Geodetic Survey Office, T. L. Warner.	1	A6	D	Jan. 13-14	440.82	460.92	5.2	1.7	3.70	59	0.5005678	0.5005430	−10	+475	+2	+148	+400	−8	0.5006285	0.5006289	0.5006287	....	
	2	A6	D	Jan. 14	445.72	466.35	4.8	1.8	2.45	59	.5005615	.5005367	−9	+526	+1	+148	+400	−8	.5006273	.5006277	.5006275	....	
	3	A6	D	Jan. 14	445.14	467.68	5.0	1.8	1.94	63	.5005622	.5005351	−9	+547	−3	+148	+400	−8	.5006297	.5006278	.5006288	....	
	4	A6	D	Jan. 14-15	447.28	466.68	5.0	1.6	2.19	63	.5005596	.5005363	−8	+537	−2	+148	+400	−8	.5006263	.5006282	.5006272	....	
	5	A6	D	Jan. 15	445.08	464.98	5.0	1.9	2.53	61	.5005623	.5005382	−10	+523	0	+148	+400	−8	.5006276	.5006287	.5006282	....	
	6	A6	D	Jan. 15	440.24	461.76	5.3	1.6	2.99	60	.5005685	.5005420	−9	+504	+1	+148	+400	−8	.5006321	.5006308	.5006314	....	
	10	A5	D	Jan. 16-17	413.53	428.91	5.2	1.7	4.04	63	.5006053	.5005836	−10	+459	−2	+123	+355	−8	.5006615	.5006630	.5006622	....	
	11	A5	D	Jan. 17	413.62	430.16	5.3	1.9	3.67	63	.5006052	.5005819	−11	+475	−2	+123	+355	−8	.5006629	.5006628	.5006628	....	
	12	A5	D	Jan. 17	411.73	429.22	5.0	2.1	4.00	57	.5006079	.5005832	−10	+461	+4	+123	+355	−8	.5006649	.5006634	.5006642	....	
	13	A5	D	Jan. 17-18	412.83	428.42	5.3	1.7	4.47	53	.5006063	.5005842	−10	+441	+8	+123	+355	−8	.5006617	.5006628	.5006622	....	
	14	A5	D	Jan. 18	409.25	425.34	5.3	1.9	5.06	58	.5006116	.5005885	−11	+416	+3	+123	+355	−8	.5006639	.5006640	.5006640	....	
	15	A5	D	Jan. 18	405.58	421.93	5.3	0.9	5.72	69	.5006171	.5005932	−7	+389	−8	+123	+355	−8	.5006660	.5006653	.5006656	....	
	7	A4	D	Jan. 15-16	321.30	331.06	5.5	1.8	3.73	66	.5007793	.5007563	−11	+472	−5	+133	+376	−8	.5008374	.5008387	.5008380	....	
	8	A4	D	Jan. 16	321.31	331.52	5.4	2.1	3.56	60	.5007793	.5007553	−11	+479	+1	+133	+376	−8	.5008387	.5008390	.5008388	....	
	9	A4	D	Jan. 16	320.14	331.02	5.5	2.1	3.54	61	.5007821	.5007564	−12	+480	0	+133	+376	−8	.5008414	.5008400	.5008407	....	
Washington, D. C., Coast and Geodetic Survey Office, T. L. Warner.	1	B4	D	Jan. 13-14	331.35	342.55	5.1	1.5	4.52	65	.5007556	.5007309	−8	+439	−5	+148	+400	−8	.5008122	.5008127	.5008124	....	
	2	B4	D	Jan. 14	334.18	345.66	4.9	1.9	3.40	59	.5007492	.5007243	−10	+486	+2	+148	+400	−8	.5008110	.5008113	.5008112	....	
	3	B4	D	Jan. 14	333.60	346.13	5.0	1.8	2.88	64	.5007505	.5007233	−9	+508	−3	+148	+400	−8	.5008141	.5008121	.5008131	....	
	4	B4	D	Jan. 14-15	335.38	346.17	5.0	1.7	3.10	58	.5007465	.5007233	−9	+499	+3	+148	+400	−8	.5008098	.5008118	.5008108	....	
	5	B4	D	Jan. 15	334.16	345.20	5.1	1.8	3.35	57	.5007493	.5007253	−9	+488	+4	+148	+400	−8	.5008116	.5008128	.5008122	....	
	6	B4	D	Jan. 15	331.01	343.04	5.2	1.7	3.73	64	.5007564	.5007298	−10	+472	−3	+148	+400	−8	.5008163	.5008149	.5008156	....	
	7	B5	D	Jan. 15-16	376.20	389.62	5.2	1.9	4.46	57	.5006654	.5006425	−11	+442	+4	+133	+376	−8	.5007214	.5007228	.5007221	....	
	8	B5	D	Jan. 16	375.55	389.52	5.0	1.9	4.38	60	.5006666	.5006427	−10	+445	+1	+133	+376	−8	.5007227	.5007221	.5007224	....	
	9	B5	D	Jan. 16	373.78	388.77	5.1	2.0	4.39	61	.5006697	.5006439	−10	+445	0	+133	+376	−8	.5007257	.5007242	.5007250	....	
	10	B6	D	Jan. 16-17	386.02	399.36	5.2	1.7	4.85	56	.5006485	.5006268	−10	+425	+4	+123	+355	−8	.5007019	.5007034	.5007026	....	
	11	B6	D	Jan. 17	385.21	399.49	5.2	1.8	4.59	69	.5006499	.5006266	−10	+436	−8	+123	+355	−8	.5007032	.5007031	.5007032	....	
	12	B6	D	Jan. 17	384.98	400.26	4.8	2.2	4.78	37	.5006502	.5006254	−11	+428	+24	+123	+355	−8	.5007058	.5007042	.5007050	....	
	13	B6	D	Jan. 17-18	385.02	398.56	4.9	1.6	5.18	54	.5006502	.5006280	−8	+411	+7	+123	+355	−8	.5007027	.5007037	.5007032	....	
	14	B6	D	Jan. 18	382.07	396.11	5.0	1.8	5.76	55	.5006552	.5006320	−9	+387	+5	+123	+355	−8	.5007050	.5007050	.5007050	....	
	15	B6	D	Jan. 18	379.22	393.57	5.4	1.2	6.38	61	.5006602	.5006360	−8	+361	0	+123	+355	−8	.5007070	.5007060	.5007065	....	
				1914	1838	3477					1838	3477				1838	3477		1838	3477			
Washington, D. C., Coast and Geodetic Survey Office, John D. Powell.	1	B4	D	July 8-9	313.41	307.26	4.4	1.7	22.02	58	.5007990	.5008150	−8	−294	+6	+470	+292[a]	−11	.5008153	.5008135	.5008144	....	
	2	B4	D	July 9	314.06	307.70	4.7	1.9	22.08	60	.5007973	.5008138	−9	−297	+4	+470	+292	−11	.5008130	.5008117	.5008124	....	
	3	B4	D	July 9	316.34	308.32	4.8	1.6	22.12	62	.5007915	.5008122	−8	−298	+2	+470	+292	−11	.5008070	.5008099	.5008084	....	
	4	B5	D	July 9-10	356.74	346.18	4.9	1.9	22.45	58	.5007018	.5007232	−10	−312	+6	+523	+329	−11	.5007214	.5007234	.5007224	....	
	5	B5	D	July 10	355.13	346.76	4.9	2.0	22.42	60	.5007049	.5007220	−10	−311	+4	+523	+329	−11	.5007244	.5007221	.5007232	....	
	6	B5	D	July 10	356.04	346.69	5.1	1.9	22.52	62	.5007031	.5007221	−10	−315	+2	+523	+329	−11	.5007220	.5007216	.5007218	....	
	7	B6	D	July 10-11	368.06	(b)	4.8	1.8	23.02	54	.5006802	(b)	−9	−336	+10	+567	(b)	−11	.5007023	....	....	....	
	8	B6	D	July 11	367.96	(b)	5.2	2.3	22.92	56	.5006804	(b)	−12	−332	+8	+567	(b)	−11	.5007024	....	....	....	
	9	B6	D	July 11	367.80	(b)	5.4	1.8	22.85	56	.5006806	(b)	−10	−329	+8	+567	(b)	−11	.5007031	....	....	....	
					1836	1838					1836	1838				1836	1838		1836	1838			
Washington, D. C., Coast and Geodetic Survey Office, John D. Powell.	1	B4	D	July 21	296.08	312.26	5.1	2.0	23.02	51	.5008458	.5008019	−10	−336	+13	−5	+441[c]	−11	.5008109	.5008116	.5008112	....	
	2	B4	D	July 21-22	295.34	311.70	5.5	2.1	23.15	52	.5008479	.5008033	−12	−341	+12	−5	+441	−11	.5008122	.5008122	.5008122	....	
	3	B4	D	July 22	295.01	311.72	5.1	2.0	23.25	53	.5008489	.5008033	−10	−346	+11	−5	+441	−11	.5008128	.5008118	.5008123	....	
	4	B5	D	July 22	329.06	350.75	5.4	2.1	23.40	60	.5007609	.5007138	−11	−352	+5	−2	+480	−11	.5007238	.5007249	.5007244	....	
	5	B5	D	July 22-23	328.88	351.90	5.1	2.0	23.52	63	.5007613	.5007114	−10	−357	+2	−2	+480	−11	.5007235	.5007218	.5007226	....	
	6	B5	D	July 23	329.33	351.52	5.7	2.0	23.68	65	.5007602	.5007123	−12	−364	0	−2	+480	−11	.5007213	.5007216	.5007214	....	
	7	B6	D	July 23	338.62	360.66	5.3	2.0	23.92	60	.5007394	.5006941	−11	−374	+5	+14	+449	−11	.5007017	.5006999	.5007008	....	

	8	B6	D	July 23-24	337.94	358.81	5.2	1.9	24.15	68	.5007409	.5006977	−11	−383	−3	+14	+449	−11	.5007015	.5007018	.5007016	....	
	9	B6	D	July 24	338.93	359.10	5.4	2.0	24.32	52	.5007387	.5006972	−11	−391	+12	+14	+449	−11	.5007000	.5007020	.5007010	....	
	10	B6	D	July 24	339.44	361.24	4.7	1.9	24.42	53	.5007376	.5006930	−9	−395	+11	+57	+514	−11	.5007029	.5007040	.5007034	....	
	11	B6	D	July 24-25	338.96	361.45	5.5	2.1	24.52	53	.5007387	.5006926	−12	−399	+11	+57	+514	−11	.5007033	.5007029	.5007031	....	
	12	B6	D	July 25	339.43	362.44	5.1	2.0	24.48	54	.5007376	.5006907	−10	−397	+10	+57	+514	−11	.5007025	.5007013	.5007019	....	
					1823	1841					1823	1841				1823	1841		1823	1841			
No. 135. Parkersburg, W. Va., John D. Powell.	4	B5	D	Aug. 25	317.35	315.59	5.7	2.3	22.30	55	.5007890	.5007934	−13	−306	+9	−140	−157	−6	.5007434	.5007461	.5007448	980.022	980.022 ±0.001
	5	B5	D	Aug. 25-26	316.34	316.35	5.9	2.1	22.10	57	.5007915	.5007915	−12	−297	+7	−140	−157	−6	.5007467	.5007450	.5007458	980.019	
	6	B5	D	Aug. 26	317.35	317.07	6.3	2.2	21.85	57	.5007890	.5007897	−14	−287	+7	−140	−157	−6	.5007450	.5007440	.5007445	980.024	
	16	B5	D	Aug. 29	317.44	316.02	5.7	2.2	22.12	56	.5007888	.5007923	−13	−298	+8	−147	−150	−6	.5007432	.5007464	.5007448	980.022	
	17	B5	D	Aug. 29-30	316.96	317.26	5.5	2.0	22.02	60	.5007900	.5007892	−12	−294	+4	−147	−150	−6	.5007445	.5007434	.5007440	980.025	
	18	B5	D	Aug. 30	317.40	318.02	5.4	1.9	21.90	63	.5007889	.5007874	−11	−289	+1	−147	−150	−6	.5007437	.5007419	.5007428	980.030	
	19	B5	D	Aug. 30	318.10	317.60	5.5	2.0	21.90	51	.5007872	.5007884	−12	−289	+13	−147	−150	−6	.5007431	.5007440	.5007436	980.027	
	20	B5	D	Aug. 30-31	317.21	317.27	6.0	2.1	21.90	54	.5007894	.5007892	−14	−289	+10	−147	−150	−6	.5007448	.5007443	.5007446	980.023	
	21	B5	D	Aug. 31	317.66	317.62	5.2	1.9	21.90	56	.5007882	.5007883	−11	−289	+8	−147	−150	−6	.5007437	.5007435	.5007436	980.027	
	7	B6	D	Aug. 26	324.92	324.02	6.2	2.5	21.90	58	.5007706	.5007728	−15	−289	+6	−143	−146	−6	.5007259	.5007278	.5007269	980.015	
	8	B6	D	Aug. 26-27	324.92	324.98	5.6	2.1	21.90	52	.5007706	.5007704	−12	−289	+12	−143	−146	−6	.5007268	.5007263	.5007266	980.017	
	9	B6	D	Aug. 27	325.23	325.56	6.0	2.1	21.90	57	.5007695	.5007691	−13	−289	+7	−143	−146	−6	.5007254	.5007244	.5007249	980.023	
	22	B6	D	Aug. 31	325.68	324.59	5.5	2.0	21.90	52	.5007688	.5007714	−12	−289	+12	−138	−154	−6	.5007255	.5007265	.5007260	980.019	
	23	B6	D	Aug.31, Sept. 1.	325.16	324.53	5.0	1.9	21.95	55	.5007700	.5007715	−10	−291	+9	−138	−154	−6	.5007264	.5007263	.5007263	980.018	
	24	B6	D	Sept. 1	325.42	324.94	4.8	1.9	21.95	56	.5007694	.5007705	−10	−291	+8	−138	−154	−6	.5007257	.5007252	.5007254	980.021	
No. 136. Columbus, Ohio, John D. Powell.	4	B5	D	Sept. 8	325.10	325.14	5.6	2.0	20.95	54	.5007702	.5007701	−12	−249	+10	−181	−159	−5	.5007265	.5007286	.5007276	980.090	980.089 ±0.001
	5	B5	D	Sept. 8-9	324.36	325.80	5.8	2.1	20.82	58	.5007719	.5007685	−13	−244	+6	−181	−159	−5	.5007282	.5007270	.5007276	980.090	
	6	B5	D	Sept. 9	325.47	327.00	4.6	1.8	20.55	60	.5007693	.5007657	−8	−232	+4	−181	−159	−5	.5007271	.5007257	.5007264	980.094	
	7	B6	D	Sept. 9	334.58	335.42	4.9	1.7	20.40	53	.5007483	.5007465	−9	−226	+11	−175	−146	−5	.5007079	.5007090	.5007084	980.088	
	8	B6	D	Sept. 9-10	333.62	335.35	5.1	1.9	20.30	56	.5007504	.5007466	−10	−222	+8	−175	−146	−5	.5007100	.5007091	.5007096	980.083	
	9	B6	D	Sept. 10	334.70	336.05	4.9	1.8	20.10	58	.5007480	.5007450	−9	−214	+6	−175	−146	−5	.5007083	.5007082	.5007082	980.088	
No. 137. Indianapolis, Ind., John D. Powell.	1	B6	D	Sept. 15	331.72	332.99	4.3	1.5	21.40	60	.5007548	.5007519	−7	−268	+4	−187	−157	−6	.5007084	.5007085	.5007084	980.088	980.090 ±0.001
	2	B6	D	Sept. 15-16	330.82	332.54	5.3	2.0	21.48	69	.5007569	.5007529	−11	−271	−4	−187	−157	−6	.5007090	.5007080	.5007085	980.087	
	3	B6	D	Sept. 16	332.55	333.62	4.8	1.8	21.45	52	.5007529	.5007505	−9	−270	+12	−187	−157	−6	.5007069	.5007075	.5007072	980.092	
	4	B5	D	Sept. 16	323.35	325.76	5.2	1.8	21.45	49	.5007744	.5007686	−10	−270	+15	−195	−140	−6	.5007278	.5007275	.5007276	980.090	
	5	B5	D	Sept. 16-17	322.92	325.77	5.2	1.8	21.40	52	.5007754	.5007686	−10	−268	+12	−195	−140	−6	.5007287	.5007274	.5007280	980.088	
	6	B5	D	Sept. 17	324.16	325.63	4.8	1.9	21.30	54	.5007724	.5007689	−10	−264	+10	−195	−140	−6	.5007259	.5007279	.5007269	980.092	
No. 138. Springfield, Ill., John D. Powell.	1	B6	D	Sept. 24	331.67	332.34	5.9	2.1	21.58	46	.5007549	.5007534	−12	−276	+18	−174	−164	−8	.5007097	.5007092	.5007094	980.084	980.089 ±0.001
	2	B6	D	Sept. 24-25	333.16	333.62	5.7	1.9	20.98	48	.5007515	.5007504	−12	−251	+16	−174	−164	−8	.5007086	.5007085	.5007086	980.087	
	3	B6	D	Sept. 25	336.38	336.42	4.5	2.0	19.72	49	.5007443	.5007412	−9	−198	+15	−174	−164	−8	.5007069	.5007078	.5007074	980.092	
	4	B5	D	Sept. 25	327.65	327.47	4.6	1.7	19.58	53	.5007642	.5007646	−8	−192	+11	−176	−163	−8	.5007269	.5007286	.5007278	980.089	
	5	B5	D	Sept. 25-26	327.18	328.28	4.7	1.9	19.35	56	.5007653	.5007628	−9	−182	+8	−176	−163	−8	.5007286	.5007274	.5007280	980.088	
	6	B5	D	Sept. 26	328.94	329.93	5.0	1.9	18.77	58	.5007612	.5007589	−10	−158	+6	−176	−163	−8	.5007266	.5007256	.5007261	980.096	
No. 139. Lebanon, Mo., John D. Powell.	1	B6	D	Oct. 5	309.92	313.16	4.3	1.7	19.60	57	.5008080	.5007996	−7	−193	+7	−255	−175	−7	.5007625	.5007621	.5007623	979.877	979.874 ±0.002
	2	B6	D	Oct. 5 6	309.63	312.93	5.1	1.8	19.78	60	.5008087	.5008002	−9	−200	+4	−255	−175	−7	.5007620	.5007615	.5007618	979.879	
	3	B6	D	Oct. 6	310.00	312.56	5.3	1.8	19.90	63	.5008078	.5008011	−10	−205	+1	−255	−175	−7	.5007602	.5007615	.5007608	979.883	
	4	B5	D	Oct. 6	300.96	304.82	5.5	2.1	20.12	59	.5008321	.5008215	−12	−215	+5	−235	−140	−7	.5007857	.5007846	.5007852	979.864	
	5	B5	D	Oct. 6-7	300.94	304.28	5.2	1.6	20.30	82	.5008321	.5008230	−9	−222	−17	−235	−140	−7	.5007831	.5007835	.5007833	979.872	
	6	B5	D	Oct. 7	301.40	304.50	4.6	1.7	20.48	63	.5008308	.5008224	−8	−230	+1	−235	−140	−7	.5007829	.5007840	.5007834	979.871	
No. 140. Joplin, Mo., John D. Powell.	1	B6	D	Oct. 13	306.38	309.55	4.5	1.6	20.38	54	.5008173	.5008090	−7	−225	+9	−221	−148	−6	.5007723	.5007713	.5007718	979.839	979.841 ±0.000
	2	B6	D	Oct. 13-14	306.68	309.44	4.6	1.7	20.35	61	.5008166	.5008092	−7	−224	+3	−221	−148	−6	.5007711	.5007710	.5007710	979.842	
	3	B6	D	Oct. 14	306.96	309.14	4.9	1.6	20.28	66	.5008158	.5008100	−8	−221	−2	−221	−148	−6	.5007700	.5007715	.5007708	979.843	
	4	B5	D	Oct. 14	299.56	301.92	5.2	1.8	20.15	58	.5008359	.5008294	−10	−216	+6	−216	−158	−6	.5007917	.5007910	.5007914	979.840	
	5	B5	D	Oct. 14-15	299.59	301.92	4.9	1.6	20.08	68	.5008358	.5008294	−8	−213	−3	−216	−158	−6	.5007912	.5007906	.5007909	979.842	
	6	B5	D	Oct. 15	300.30	301.92	4.4	1.6	19.95	65	.5008339	.5008294	−7	−207	−1	−216	−158	−6	.5007902	.5007915	.5007908	979.842	
No. 141. Fort Smith, Ark., John D. Powell.	1	B6	D	Oct. 20	290.55	293.00	4.5	1.6	22.45	55	.5008620	.5008547	−7	−312	+9	−213	−150	−6	.5008091	.5008081	.5008086	979.695	979.706 ±0.002
	2	B6	D	Oct. 20-21	290.74	292.86	5.0	1.6	22.45	74	.5008614	.5008551	−8	−312	−9	−213	−150	−6	.5008066	.5008066	.5008066	979.704	
	3	B6	D	Oct. 21	292.26	294.00	5.1	1.8	22.30	66	.5008569	.5008518	−9	−306	−2	−213	−150	−6	.5008033	.5008045	.5008039	979.714	
	4	B5	D	Oct. 21	283.25	286.16	4.4	1.6	22.80	74	.5008842	.5008752	−7	−327	−8	−222	−150	−6	.5008272	.5008254	.5008263	979.704	
	5	B5	D	Oct. 21-22	284.40	286.86	4.3	1.3	22.40	66	.5008806	.5008730	−6	−310	−2	−222	−150	−6	.5008260	.5008256	.5008258	979.705	
	6	B5	D	Oct. 22	286.29	287.96	4.1	1.5	22.02	57	.5008747	.5008697	−6	−294	+7	−222	−150	−6	.5008226	.5008248	.5008237	979.714	

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[a] Chronometer rates were determined by star observations.
[b] Chronometer 3477 failed to break for the last day's observations.
[c] Chronometer rates were determined from Western Union noon signals.

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1823	Chronometer No. 1841	Initial	Final			Chronometer No. 1823	Chronometer No. 1841	Arc	Temperature	Pressure	Rate		Flexure	Chronometer No. 1823	Chronometer No. 1841	Mean		
																Chronometer No. 1823	Chronometer No. 1841						
				1914	s.	s.	mm.	mm.	° C.	mm.	s.	s.							s.	s.	s.	Dynes	Dynes
No. 143. Hot Springs, Ark., John D. Powell.	1	B6	D	Nov. 4	293.84	296.42	4.9	1.6	17.32	62	0.5008523	0.5008448	− 8	− 97	+ 2	−209	−142	− 7	0.5008204	0.5008196	0.5008200	979.651	979.[illegible] ±0.[illegible]
	2	B6	D	Nov. 4–5	293.54	296.02	4.8	1.5	17.35	79	.5008531	.5008459	− 8	− 98	− 14	−209	−142	− 7	.5008195	.5008190	.5008192	979.654	
	3	B6	D	Nov. 5	295.08	297.10	4.9	1.7	17.25	62	.5008487	.5008429	− 9	− 94	+ 2	−209	−142	− 7	.5008170	.5008179	.5008174	979.661	
	4	B5	D	Nov. 5	287.56	290.74	5.0	2.0	17.48	55	.5008709	.5008614	− 10	−104	+ 8	−216	−136	− 7	.5008380	.5008365	.5008372	979.661	
	5	B5	D	Nov. 5–6	287.42	290.10	4.4	1.4	17.48	69	.5008713	.5008633	− 7	−104	− 5	−216	−136	− 7	.5008374	.5008374	.5008374	979.660	
	6	B5	D	Nov. 6	288.75	290.77	5.2	1.9	17.35	59	.5008673	.5008613	− 11	− 98	+ 5	−216	−136	− 7	.5008346	.5008366	.5008356	979.667	
No. 142. Texarkana, Ark., John D. Powell.	1	B6	D	Nov. 11	277.68	280.74	5.2	2.2	24.75	40	.5009020	.5008921	− 12	−409	+ 22	−230	−136	− 5	.5008386	.5008381	.5008384	979.579	979.587 ±0.001
	2	B6	D	Nov. 11–12	278.23	281.74	5.1	1.8	24.60	46	.5009001	.5008889	− 9	−402	+ 17	−230	−136	− 5	.5008372	.5008354	.5008363	979.587	
	3	B6	D	Nov. 12	277.72	279.82	5.5	2.0	25.15	53	.5009018	.5008950	− 12	−425	+ 12	−230	−136	− 5	.5008358	.5008384	.5008371	979.584	
	4	B5	D	Nov. 12	271.56	273.95	5.4	2.0	25.52	54	.5009223	.5009142	− 11	−441	+ 11	−216	−145	− 5	.5008561	.5008551	.5008556	979.589	
	5	B5	D	Nov. 12–13	271.26	273.22	5.7	1.9	25.68	65	.5009233	.5009167	− 12	−447	+ 1	−216	−145	− 5	.5008554	.5008559	.5008556	979.589	
	6	B5	D	Nov. 13	271.08	272.91	5.3	1.7	25.85	75	.5009240	.5009177	− 10	−455	− 9	−216	−145	− 5	.5008545	.5008553	.5008549	979.592	
No. 144. Alexandria, La., John D. Powell.	1	B6	D	Nov. 18	270.02	272.46	4.9	1.9	21.75	53	.5009275	.5009193	− 10	−283	+ 11	−212	−138	− 6	.5008775	.5008767	.5008771	979.428	979.429 ±0.000
	2	B6	D	Nov. 18–19	269.83	271.99	4.9	1.6	21.90	63	.5009282	.5009209	− 8	−289	+ 2	−212	−138	− 6	.5008769	.5008770	.5008770	979.428	
	3	B6	D	Nov. 19	269.96	271.88	4.4	1.5	21.90	71	.5009278	.5009213	− 7	−289	− 6	−212	−138	− 6	.5008768	.5008767	.5008768	979.429	
	4	B5	D	Nov. 19	263.69	266.74	5.1	1.8	22.05	57	.5009499	.5009390	− 9	−295	+ 7	−220	−122	− 6	.5008976	.5008965	.5008970	979.427	
	5	B5	D	Nov. 19–20	263.26	266.26	5.2	1.5	22.25	80	.5009515	.5009407	− 9	−304	− 14	−220	−122	− 6	.5008962	.5008952	.5008957	979.432	
	6	B5	D	Nov. 20	264.01	266.11	5.5	1.9	22.12	66	.5009487	.5009412	− 11	−298	0	−220	−122	− 6	.5008952	.5008975	.5008964	979.429	
No. 145. Laurel, Miss., John D. Powell.	1	B6	D	Nov. 24	278.80	281.80	5.8	1.9	16.20	49	.5008983	.5008887	− 12	− 50	+ 14	−218	−134	− 5	.5008712	.5008700	.5008706	979.453	979.465 ±0.003
	2	B6	D	Nov. 24–25	279.56	282.21	5.3	1.8	16.48	54	.5008959	.5008874	− 10	− 62	+ 9	−218	−134	− 5	.5008673	.5008672	.5008672	979.466	
	3	B6	D	Nov. 25	281.06	283.12	5.0	2.0	16.15	59	.5008911	.5008845	− 10	− 48	+ 4	−218	−134	− 5	.5008634	.5008652	.5008643	979.478	
	4	B5	D	Nov. 25	272.24	274.90	5.0	1.9	17.12	49	.5009200	.5009111	− 10	− 89	+ 14	−207	−127	− 5	.5008903	.5008894	.5008898	979.455	
	5	B5	D	Nov. 25–26	273.30	275.66	5.3	1.8	16.92	53	.5009164	.5009086	− 10	− 80	+ 10	−207	−127	− 5	.5008872	.5008874	.5008873	979.465	
	6	B5	D	Nov. 26	275.29	277.32	5.1	1.8	16.00	58	.5009098	.5009031	− 9	− 42	+ 5	−207	−127	− 5	.5008840	.5008853	.5008846	979.475	
				1915																			
Washington, D. C., Coast and Geodetic Survey Office, John D. Powell.	1	B4	D	Jan. 7	299.61	302.02	4.8	1.4	14.22	66	.5008358	.5008291	− 8	+ 33	− 3	−177	−122	− 8	.5008195	.5008183	.5008189	....	
	2	B4	D	Jan. 7–8	301.76	304.00	4.7	1.7	13.32	53	.5008298	.5008237	− 8	+ 70	+ 9	−177	−122	− 8	.5008184	.5008178	.5008181	....	
	3	B4	D	Jan. 8	303.52	304.86	4.6	2.0	12.70	55	.5008250	.5008214	− 9	+ 96	+ 7	−177	−122	− 8	.5008159	.5008178	.5008168	....	
	10	B4	D	Jan. 12	305.58	307.80	5.1	2.0	11.12	52	.5008195	.5008135	− 10	+162	+ 10	−164	−115	− 8	.5008185	.5008174	.5008180	....	
	11	B4	D	Jan. 12–13	304.90	306.50	5.3	1.9	11.48	69	.5008213	.5008170	− 11	+147	− 6	−164	−115	− 8	.5008171	.5008177	.5008174	....	
	12	B4	D	Jan. 13	304.63	306.01	5.2	1.8	11.80	63	.5008220	.5008183	− 10	+134	0	−164	−115	− 8	.5008172	.5008184	.5008178	....	
	4	B5	D	Jan. 8	342.60	345.70	5.5	1.9	12.60	58	.5007308	.5007242	− 12	+101	+ 5	−166	−118	− 8	.5007228	.5007210	.5007219	....	
	5	B5	D	Jan. 8–9	344.01	346.11	5.5	2.0	12.28	58	.5007278	.5007234	− 12	+114	+ 4	−166	−118	− 8	.5007210	.5007214	.5007212	....	
	6	B5	D	Jan. 9	345.74	346.98	4.8	2.0	11.90	61	.5007241	.5007215	− 10	+130	+ 1	−166	−118	− 8	.5007188	.5007210	.5007199	....	
	7	B6	D	Jan. 11	357.04	359.76	5.0	1.8	10.75	54	.5007012	.5006959	− 9	+178	+ 8	−145	−107	− 8	.5007036	.5007021	.5007028	....	
	8	B6	D	Jan. 11–12	356.95	359.12	5.4	1.6	10.68	76	.5007014	.5006972	− 9	+181	− 13	−145	−107	− 8	.5007020	.5007016	.5007018	....	
	9	B6	D	Jan. 12	357.91	359.28	5.4	2.1	10.62	59	.5006995	.5006968	− 11	+184	+ 3	−145	−107	− 8	.5007018	.5007029	.5007024	....	
No. 146. Richmond, Va., John D. Powell.	4	B5	D	Feb. 10	310.56	315.06	4.7	1.7	20.35	48	.5008063	.5007948	− 8	−224	+ 15	−218	−120	− 7	.5007621	.5007604	.5007612	979.954	979.960 ±0.001
	5	B5	D	Feb. 10–11	310.99	315.19	5.6	2.1	20.35	49	.5008052	.5007944	− 12	−224	+ 14	−218	−120	− 7	.5007605	.5007595	.5007600	979.959	
	6	B5	D	Feb. 11	311.84	314.94	5.5	2.4	20.35	49	.5008030	.5007951	− 14	−224	+ 14	−218	−120	− 7	.5007581	.5007600	.5007590	979.962	
	7	B6	D	Feb. 11	317.69	322.41	5.8	2.2	20.42	48	.5007881	.5007766	− 13	−227	+ 15	−231	−131	− 7	.5007418	.5007403	.5007410	979.959	
	8	B6	D	Feb. 11–12	318.46	322.74	3.7	1.4	20.45	49	.5007863	.5007758	− 6	−228	+ 14	−231	−131	− 7	.5007405	.5007400	.5007402	979.962	
	9	B6	D	Feb. 12	319.24	322.22	3.9	1.8	20.48	49	.5007843	.5007771	− 7	−230	+ 14	−231	−131	− 7	.5007382	.5007410	.5007396	979.964	

No. 147. Emporia, Va., John D. Powell.	1	B5	D	Feb. 24	315.32	317.47	4.2	1.5	14.85	52	.5007941	.5007887	− 7	+ 6	+ 11	−166	−126	− 7	.5007778	.5007764	.5007771	979.891	979.898 ±0.001
	2	B5	D	Feb. 24–25	315.95	317.71	5.7	1.6	14.30	67	.5007925	.5007881	− 10	+ 29	− 4	−166	−126	− 7	.5007767	.5007763	.5007765	979.893	
	3	B5	D	Feb. 25	318.48	319.26	5.6	2.3	13.75	57	.5007862	.5007843	− 13	+ 52	+ 6	−166	−126	− 7	.5007734	.5007755	.5007744	979.902	
	4	B6	D	Feb. 25	327.98	329.62	5.9	1.9	12.82	65	.5007634	.5007596	− 12	+ 91	− 2	−132	−105	− 7	.5007572	.5007561	.5007566	979.898	
	5	B6	D	Feb. 25–26	329.72	331.00	4.9	1.2	11.88	77	.5007594	.5007564	− 7	+131	− 14	−132	−105	− 7	.5007565	.5007562	.5007564	979.899	
	6	B6	D	Feb. 26	333.08	333.44	5.8	2.2	10.75	66	.5007517	.5007509	− 13	+178	− 4	−132	−105	− 7	.5007539	.5007558	.5007548	979.905	
No. 148. Greenville, N. C., John D. Powell.	1	B5	D	Mar. 9	298.19	300.95	5.7	1.9	17.75	56	.5008398	.5008321	− 12	−115	+ 7	−222	−163	− 8	.5008048	.5008030	.5008039	979.787	979.787 ±0.001
	2	B5	D	Mar. 9–10	298.30	300.76	5.7	1.9	17.75	57	.5008395	.5008326	− 12	−115	+ 6	−222	−163	− 8	.5008044	.5008034	.5008039	979.786	
	3	B5	D	Mar. 10	299.12	300.24	6.2	2.7	17.90	58	.5008372	.5008341	− 17	−121	+ 6	−222	−163	− 8	.5008010	.5008038	.5008024	979.792	
	4	B6	D	Mar. 10	301.27	306.78	5.0	1.9	18.02	56	.5008230	.5008163	− 10	−126	+ 7	−225	−172	− 8	.5007868	.5007854	.5007861	979.783	
	5	B6	D	Mar. 10–11	301.38	306.54	4.9	1.6	18.28	58	.5008227	.5008169	− 8	−137	+ 6	−225	−172	− 8	.5007855	.5007850	.5007852	979.786	
	6	B6	D	Mar. 11	301.81	306.12	4.6	1.8	18.45	59	.5008216	.5008180	− 8	−145	+ 5	−225	−172	− 8	.5007835	.5007852	.5007844	979.789	
	7	B6	D	Mar. 11	303.77	306.79	4.7	1.7	18.40	60	.5008214	.5008162	− 8	−142	+ 4	−225	−165	− 8	.5007865	.5007843	.5007854	979.786	
	8	B6	D	Mar. 11–12	304.10	306.58	4.8	1.8	18.40	61	.5008234	.5008168	− 9	−142	+ 3	−225	−165	− 8	.5007853	.5007847	.5007850	979.787	
	9	B6	D	Mar. 12	304.95	306.24	4.7	1.8	18.40	61	.5008212	.5008177	− 9	−142	+ 3	−225	−165	− 8	.5007831	.5007856	.5007844	979.789	
No. 149. Wilmington, N. C., John D. Powell.	1	B6	D	Mar. 16	296.80	299.40	6.0	2.3	15.30	55	.5008437	.5008364	− 14	− 13	+ 8	−221	−167	− 8	.5008189	.5008170	.5008180	979.657	979.663 ±0.001
	2	B6	D	Mar. 16–17	297.60	299.58	4.7	1.7	15.40	55	.5008415	.5008358	− 8	− 17	+ 8	−221	−167	− 8	.5008169	.5008166	.5008168	979.662	
	3	B6	D	Mar. 17	299.82	300.95	5.0	2.0	14.70	56	.5008352	.5008321	− 10	+ 13	+ 7	−221	−167	− 8	.5008133	.5008156	.5008144	979.672	
	4	B5	D	Mar. 17	293.22	295.60	4.7	1.7	14.18	49	.5008540	.5008172	− 8	+ 34	+ 13	−206	−152	− 8	.5008365	.5008351	.5008358	979.662	
	5	B5	D	Mar. 17–18	293.72	295.68	5.8	2.0	13.80	49	.5008526	.5008170	− 12	+ 50	+ 13	−206	−152	− 8	.5008363	.5008361	.5008362	979.660	
	6	B5	D	Mar. 18	296.23	297.35	5.8	2.4	12.90	50	.5008453	.5008122	− 14	+ 88	+ 12	−206	−152	− 8	.5008325	.5008348	.5008336	979.671	
	7	B5	D	Mar. 18	294.70	297.55	4.5	1.7	12.80	51	.5008498	.5008416	− 8	+ 92	+ 11	−212	−152	− 8	.5008373	.5008351	.5008362	979.660	
	8	B5	D	Mar. 18–19	294.10	296.28	4.8	1.7	13.32	52	.5008515	.5008452	− 9	+ 70	+ 10	−212	−152	− 8	.5008366	.5008363	.5008364	979.659	
	9	B5	D	Mar. 19	295.11	296.34	5.3	1.8	13.45	53	.5008486	.5008451	− 10	+ 65	+ 9	−212	−152	− 8	.5008330	.5008355	.5008342	979.668	
No. 150. Cheraw, S. C., John D. Powell.	1	B5	D	Mar. 25	300.75	303.08	4.3	1.5	11.70	57	.5008326	.5008262	− 7	+138	+ 5	−216	−167	− 11	.5008235	.5008220	.5008228	979.713	979.711 ±0.001
	2	B5	D	Mar. 25–26	299.50	301.26	4.7	1.6	12.35	59	.5008361	.5008312	− 8	+111	+ 3	−216	−167	− 11	.5008240	.5008240	.5008240	979.708	
	3	B5	D	Mar. 26	299.28	300.47	5.5	2.0	12.90	60	.5008368	.5008334	− 12	+ 88	+ 3	−216	−167	− 11	.5008220	.5008235	.5008228	979.713	
	4	B6	D	Mar. 26	303.82	306.06	4.3	1.5	13.65	54	.5008242	.5008182	− 7	+ 57	+ 8	−222	−182	− 11	.5008067	.5008047	.5008057	979.706	
	5	B6	D	Mar. 26–27	303.05	304.72	4.5	1.4	14.42	56	.5008263	.5008218	− 7	+ 24	+ 7	−222	−182	− 11	.5008054	.5008049	.5008052	979.708	
	6	B6	D	Mar. 27	303.91	304.60	4.0	1.6	14.68	57	.5008240	.5008221	− 6	+ 13	+ 6	−222	−182	− 11	.5008020	.5008041	.5008030	979.716	
	7	B6	D	Mar. 29	306.42	308.36	5.1	1.8	12.80	62	.5008172	.5008121	− 9	+ 92	+ 1	−200	−169	− 11	.5008045	.5008025	.5008035	979.715	
	8	B6	D	Mar. 29–30	305.30	306.57	5.3	1.6	13.25	63	.5008202	.5008168	− 9	+ 73	0	−200	−169	− 11	.5008055	.5008052	.5008054	979.707	
	9	B6	D	Mar. 30	306.16	306.60	4.2	1.6	13.50	64	.5008179	.5008167	− 7	+ 63	− 1	−200	−169	− 11	.5008023	.5008042	.5008032	979.716	
No. 151. Charlotte, N. C., John D. Powell.	1	B6	D	Apr. 5	316.43	318.90	5.7	2.2	8.38	65	.5007913	.5007852	− 13	+277	− 3	−153	−108	− 10	.5008011	.5007995	.5008003	979.727	979.727 ±0.001
	2	B6	D	Apr. 5–6	316.80	318.74	4.0	1.2	8.45	67	.5007904	.5007856	− 5	+274	− 5	−153	−108	− 10	.5008005	.5008002	.5008004	979.727	
	3	B6	D	Apr. 6	317.10	318.03	5.4	2.2	8.60	69	.5007896	.5007873	− 12	+268	− 7	−153	−108	− 10	.5007982	.5008004	.5007993	979.731	
	4	B5	D	Apr. 6	308.46	310.34	5.3	1.9	8.92	60	.5008118	.5008069	− 11	+255	+ 2	−153	−119	− 10	.5008201	.5008186	.5008194	979.726	
	5	B5	D	Apr. 6–7	308.38	309.78	6.0	1.9	9.18	64	.5008120	.5008083	− 12	+244	− 2	−153	−119	− 10	.5008187	.5008184	.5008186	979.729	
	6	B5	D	Apr. 7	308.50	309.08	5.7	2.3	9.38	68	.5008117	.5008102	− 13	+235	− 6	−153	−119	− 10	.5008170	.5008189	.5008180	979.731	
	7	B5	D	Apr. 7	307.32	308.46	5.2	1.9	9.62	73	.5008148	.5008118	− 11	+225	− 11	−131	−119	− 10	.5008210	.5008192	.5008201	979.723	
	8	B5	D	Apr. 7–8	307.60	307.88	5.4	1.4	9.88	77	.5008141	.5008133	− 9	+214	− 15	−131	−119	− 10	.5008190	.5008194	.5008192	979.727	
	9	B5	D	Apr. 8	307.30	307.24	5.0	1.6	10.15	81	.5008149	.5008150	− 8	+203	− 18	−131	−119	− 10	.5008185	.5008198	.5008192	979.726	
No. 154. Winston-Salem, N. C., John D. Powell.	1	B5	D	Apr. 12	293.08	295.11	4.8	1.5	17.40	53	.5008545	.5008486	− 8	−101	+ 10	−195	−158	− 7	.5008244	.5008222	.5008233	979.711	979.718 ±0.001
	2	B5	D	Apr. 12–13	293.68	295.36	4.9	1.8	17.15	56	.5008528	.5008479	− 9	− 90	+ 7	−195	−158	− 7	.5008234	.5008222	.5008228	979.713	
	3	B5	D	Apr. 13	295.46	296.10	6.3	2.4	16.42	58	.5008476	.5008457	− 16	− 60	+ 6	−195	−158	− 7	.5008204	.5008222	.5008213	979.718	
	4	B6	D	Apr. 13	302.48	303.92	3.8	1.5	15.95	54	.5008279	.5008239	− 6	− 40	+ 10	−205	−179	− 7	.5008031	.5008017	.5008024	979.719	
	5	B6	D	Apr. 13–14	302.00	303.09	6.0	2.1	15.98	56	.5008292	.5008262	− 14	− 41	+ 7	−205	−179	− 7	.5008032	.5008028	.5008030	979.716	
	6	B6	D	Apr. 14	303.56	303.64	4.5	1.9	15.95	57	.5008249	.5008247	− 9	− 40	+ 6	−205	−179	− 7	.5007994	.5008018	.5008006	979.726	
	7	B6	D	Apr. 14	301.52	303.26	5.4	1.9	16.15	58	.5008305	.5008257	− 11	− 48	+ 5	−206	−169	− 7	.5008038	.5008027	.5008032	979.716	
	8	B6	D	Apr. 14–15	302.10	303.64	5.0	1.7	15.90	59	.5008289	.5008247	− 9	− 38	+ 4	−206	−169	− 7	.5008033	.5008028	.5008030	979.716	
	9	B6	D	Apr. 15	304.78	305.30	4.9	2.1	15.05	60	.5008216	.5008202	− 10	− 2	+ 3	−206	−169	− 7	.5007994	.5008017	.5008006	979.726	
No. 152. Asheville, N. C., John D. Powell.	1	B6	D	Apr. 22	285.39	287.23	4.6	1.3	20.22	49	.5008775	.5008719	− 7	−219	+ 14	−232	−186	− 7	.5008324	.5008314	.5008319	979.603	979.603 ±0.001
	2	B6	D	Apr. 22–23	284.81	286.60	5.3	1.8	20.40	50	.5008794	.5008738	− 10	−226	+ 13	−232	−186	− 7	.5008332	.5008322	.5008327	979.600	
	3	B6	D	Apr. 23	285.60	286.38	5.1	2.5	20.45	51	.5008769	.5008745	− 12	−228	+ 12	−232	−186	− 7	.5008302	.5008324	.5008313	979.606	
	4	B5	D	Apr. 23	277.81	279.72	4.5	1.6	20.62	67	.5009016	.5008953	− 7	−235	− 2	−240	−194	− 7	.5008525	.5008508	.5008516	979.600	
	5	B5	D	Apr. 23–24	277.90	279.42	5.8	1.5	20.68	69	.5009012	.5008963	− 11	−238	− 4	−240	−194	− 7	.5008512	.5008509	.5008510	979.602	
	6	B5	D	Apr. 24	278.88	279.48	4.6	1.7	20.50	70	.5008981	.5008962	− 8	−230	− 5	−240	−194	− 7	.5008491	.5008518	.5008504	979.605	
	7	B5	D	Apr. 24	278.36	279.92	3.9	1.1	20.40	72	.5008997	.5008947	− 5	−226	− 7	−230	−192	− 7	.5008522	.5008510	.5008516	979.600	
	8	B5	D	Apr. 24–25	278.25	279.59	6.4	1.7	20.40	73	.5009000	.5008957	− 13	−226	− 8	−230	−192	− 7	.5008516	.5008511	.5008514	979.601	
	9	B5	D	Apr. 25	278.84	279.52	5.7	2.3	20.38	75	.5008982	.5008960	− 13	−225	− 10	−230	−192	− 7	.5008497	.5008513	.5008505	979.604	
	10	B5	D	Apr. 25	278.36	279.87	5.9	1.7	20.35	76	.5008997	.5008949	− 11	−224	− 11	−230	−192	− 7	.5008514	.5008504	.5008509	979.602	
	11	B5	D	Apr. 25–26	278.38	279.67	6.2	1.7	20.35	77	.5008997	.5008955	− 12	−224	− 12	−230	−192	− 7	.5008512	.5008508	.5008510	979.602	
	12	B5	D	Apr. 26	279.57	279.94	3.6	1.4	20.32	78	.5008958	.5008946	− 5	−223	− 13	−230	−192	− 7	.5008480	.5008506	.5008493	979.609	

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1823	Chronometer No. 1841	Initial	Final			Chronometer No. 1823	Chronometer No. 1841	Arc	Temperature	Pressure	Rate		Flexure	Chronometer No. 1823	Chronometer No. 1841	Mean		
																Chronometer No. 1823	Chronometer No. 1841						
				1915	*s.*	*s.*	*mm.*	*mm.*	*° C.*	*mm.*	*s.*	*s.*							*s.*	*s.*	*s.*	*Dynes*	*Dynes*
No. 153. Cleveland, Tenn., John D. Powell.	1	B5	D	Apr. 30......	281.59	283.41	4.3	1.1	21.00	66	0.5008894	0.5008837	−5	−251	−2	−225	−179	−8	0.5008403	0.5008392	0.5008398	979.646	979.649 ±0.001
	2	B5	D	Apr.30–May1	281.59	283.20	6.4	1.6	20.52	82	.5008894	.5008843	−12	−231	−16	−225	−179	−8	.5008402	.5008397	.5008400	979.645	
	3	B5	D	May 1........	282.56	283.33	5.2	2.3	20.40	77	.5008863	.5008839	−12	−226	−11	−225	−179	−8	.5008381	.5008403	.5008392	979.649	
	4	B6	D	May 1........	287.86	289.67	4.1	1.1	20.92	63	.5008700	.5008645	−5	−248	+1	−223	−176	−8	.5008217	.5008209	.5008213	979.645	
	5	B6	D	May 1–2......	287.07	288.97	4.5	1.3	21.32	74	.5008724	.5008666	−7	−265	−9	−223	−176	−8	.5008212	.5008201	.5008206	979.648	
	6	B6	D	May 2........	287.61	288.24	6.0	2.5	21.40	82	.5008708	.5008689	−15	−268	−16	−223	−176	−8	.5008178	.5008206	.5008192	979.653	
	7	B6	D	May 2........	287.72	289.25	4.1	1.1	21.48	63	.5008704	.5008658	−5	−271	+2	−217	−181	−8	.5008205	.5008195	.5008200	979.650	
	8	B6	D	May 2–3......	286.94	288.36	5.0	1.2	21.70	76	.5008728	.5008685	−7	−281	−11	−217	−181	−8	.5008204	.5008197	.5008200	979.650	
	9	B6	D	May 3........	287.20	287.65	5.2	2.3	21.85	88	.5008720	.5008706	−12	−287	−21	−217	−181	−8	.5008175	.5008197	.5008186	979.655	
No. 155. Knoxville, Tenn., John D. Powell.	1	B6	D	May 10......	297.30	297.98	4.5	1.1	18.88	68	.5008423	.5008404	−6	−163	−4	−201	−187	−10	.5008039	.5008034	.5008036	979.714	979.712 ±0.000
	2	B6	D	May 10–11...	296.12	297.02	6.4	1.9	18.90	92	.5008456	.5008431	−15	−163	−26	−201	−187	−10	.5008041	.5008030	.5008036	979.714	
	3	B6	D	May 11......	297.01	297.02	6.4	2.7	18.95	72	.5008432	.5008431	−18	−166	−7	−201	−187	−10	.5008030	.5008043	.5008036	979.714	
	10	B6	D	May 13......	295.13	295.52	6.8	2.5	20.42	42	.5008485	.5008474	−18	−227	+21	−199	−194	−10	.5008052	.5008046	.5008049	979.709	
	11	B6	D	May 13–14...	294.80	295.16	4.7	1.1	20.45	69	.5008495	.5008484	−6	−228	−4	−199	−194	−10	.5008048	.5008042	.5008045	979.711	
	12	B6	D	May 14......	294.40	294.08	4.9	1.8	20.52	91	.5008506	.5008516	−9	−231	−25	−199	−194	−10	.5008032	.5008047	.5008040	979.712	
	4	B5	D	May 11......	289.70	290.49	6.4	1.9	19.28	58	.5008644	.5008621	−14	−179	+6	−201	−187	−10	.5008246	.5008237	.5008242	979.707	
	5	B5	D	May 11–12...	289.02	289.58	6.0	1.8	19.70	78	.5008664	.5008648	−12	−197	−13	−201	−187	−10	.5008231	.5008229	.5008230	979.712	
	6	B5	D	May 12......	289.20	288.86	7.0	2.9	19.88	74	.5008660	.5008670	−20	−205	−9	−201	−187	−10	.5008215	.5008239	.5008227	979.713	
	7	B5	D	May 12......	288.20	289.37	6.0	1.7	20.05	67	.5008690	.5008655	−12	−212	−2	−215	−196	−10	.5008239	.5008223	.5008231	979.711	
	8	B5	D	May 12–13...	288.20	289.00	5.8	1.8	20.22	66	.5008690	.5008665	−12	−219	−2	−215	−196	−10	.5008232	.5008226	.5008229	979.712	
	9	B5	D	May 13......	288.36	288.10	5.0	2.1	20.32	85	.5008685	.5008693	−10	−223	−19	−215	−196	−10	.5008208	.5008235	.5008222	979.715	
No. 156. Bristol, Va., John D. Powell	1	B6	D	May 19......	295.70	296.68	5.2	1.5	19.18	68	.5008169	.5008441	−9	−175	−4	−227	−207	−12	.5008042	.5008034	.5008038	979.713	979.712 ±0.001
	2	B6	D	May 19–20...	295.19	296.21	6.0	1.7	19.32	80	.5008484	.5008454	−12	−181	−15	−227	−207	−12	.5008037	.5008027	.5008032	979.716	
	3	B6	D	May 20......	296.12	296.06	5.3	2.3	19.38	72	.5008456	.5008458	−12	−183	−7	−227	−207	−12	.5008015	.5008037	.5008026	979.718	
	4	B5	D	May 20......	288.71	289.66	5.2	1.8	19.58	64	.5008674	.5008646	−10	−192	0	−220	−209	−12	.5008240	.5008223	.5008232	979.711	
	5	B5	D	May 20–21...	288.94	289.54	5.0	1.8	19.90	55	.5008667	.5008649	−9	−205	+9	−220	−209	−12	.5008230	.5008223	.5008226	979.713	
	6	B5	D	May 21......	289.14	288.57	5.6	2.3	19.95	64	.5008661	.5008679	−13	−207	0	−220	−209	−12	.5008209	.5008238	.5008224	979.714	
	7	B5	D	May 21......	287.82	288.54	6.8	2.4	20.18	64	.5008701	.5008680	−17	−217	0	−206	−198	−12	.5008249	.5008236	.5008242	979.707	
	8	B5	D	May 21–22...	287.49	288.18	5.6	1.0	20.45	76	.5008711	.5008691	−8	−228	−11	−206	−198	−12	.5008246	.5008234	.5008240	979.708	
	9	B5	D	May 22......	288.20	287.83	4.5	2.1	20.65	70	.5008690	.5008701	−9	−237	−5	−206	−198	−12	.5008221	.5008240	.5008230	979.712	
Washington, D. C., Coast and Geodetic Survey Office, John D. Powell.	1	B4	D	June 18......	282.43	284.10	5.1	2.0	23.05	48	.5008867	.5008815	−10	−337	+16	−215	−180	−11	.5008310	.5008293	.5008302	....	
	2	B4	D	June 18–19...	283.74	284.98	4.7	1.8	22.55	52	.5008826	.5008788	−9	−316	+12	−215	−180	−11	.5008287	.5008284	.5008286	....	
	3	B4	D	June 19......	284.58	284.94	4.8	1.7	22.22	54	.5008801	.5008789	−9	−302	+10	−215	−180	−11	.5008274	.5008297	.5008286	....	
	10	B4	D	July 1.......	284.02	286.14	5.9	2.3	21.52	67	.5008817	.5008753	−11	−273	−2	−215	−165	−11	.5008302	.5008288	.5008295	....	
	11	B4	D	July 1–2.....	284.49	286.20	4.7	1.3	21.75	65	.5008803	.5008751	−7	−283	0	−215	−165	−11	.5008287	.5008285	.5008286	....	
	12	B4	D	July 2.......	284.58	285.50	5.5	2.0	21.88	69	.5008801	.5008772	−12	−288	−4	−215	−165	−11	.5008271	.5008292	.5008282	....	
	4	B5	D	June 29......	325.60	328.18	5.0	2.1	20.40	63	.5007690	.5007629	−10	−226	+1	−217	−171	−11	.5007227	.5007212	.5007220	....	
	5	B5	D	June 29–30...	326.18	328.21	4.5	1.2	20.58	67	.5007676	.5007629	−6	−234	−2	−217	−171	−11	.5007206	.5007205	.5007206	....	
	6	B5	D	June 30......	326.58	327.62	4.2	1.5	20.80	71	.5007667	.5007643	−7	−243	−6	−217	−171	−11	.5007183	.5007205	.5007194	....	
	7	B6	D	June 30......	333.08	336.12	4.7	1.9	21.14	57	.5007517	.5007449	−9	−257	+7	−213	−168	−11	.5007034	.5007011	.5007022	....	
	8	B6	D	June 30–July 1	333.46	335.50	6.1	1.8	21.30	64	.5007509	.5007463	−13	−264	0	−213	−168	−11	.5007008	.5007007	.5007008	....	
	9	B6	D	July 1.......	333.72	334.87	5.4	1.8	21.38	69	.5007503	.5007477	−10	−267	−4	−213	−168	−11	.5006998	.5007017	.5007008	....	

No. 177, Traverse City, Mich., John D. Powell.	1	B4	D	July 14......	329.72	332.20	5.9	2.0	19.42	51	.5007594	.5007537	−12	−185	+12	−211	−168	−7	.5007191	.5007177	.5007184	980.545	980.550 ±0.001
	2	B4	D	July 14–15...	329.84	331.92	5.2	1.6	19.45	71	.5007591	.5007544	−9	−185	−6	−211	−168	−7	.5007172	.5007168	.5007170	980.550	
	3	B4	D	July 15......	331.15	331.78	5.4	2.3	19.45	64	.5007561	.5007546	−12	−186	0	−211	−168	−7	.5007145	.5007173	.5007159	980.554	
	4	B5	D	July 15......	383.65	387.56	5.8	2.0	19.68	53	.5006525	.5006459	−12	−196	+10	−218	−168	−7	.5006102	.5006086	.5006094	980.547	
	5	B5	D	July 15–16...	383.30	386.17	6.0	1.8	19.80	76	.5006531	.5006482	−12	−201	−11	−218	−168	−7	.5006082	.5006083	.5006082	980.552	
	6	B5	D	July 16......	385.24	386.85	5.4	2.2	19.70	61	.5006498	.5006471	−12	−197	+3	−218	−168	−7	.5006067	.5006090	.5006078	980.554	
	7	B6	D	July 16......	395.12	398.50	5.8	2.1	19.88	48	.5006336	.5006281	−12	−204	+15	−214	−171	−7	.5005914	.5005902	.5005908	980.545	
	8	B6	D	July 16–17...	395.54	398.52	4.4	1.4	19.92	64	.5006329	.5006281	−7	−206	0	−214	−171	−7	.5005895	.5005890	.5005892	980.551	
	9	B6	D	July 17......	395.66	397.36	5.4	2.0	19.92	78	.5006327	.5006299	−11	−206	−13	−214	−171	−7	.5005876	.5005891	.5005884	980.554	
No. 178. Seney, Mich., John D. Powell.	1	B5	D	July 21......	408.82	411.74	5.4	2.1	18.92	41	.5006123	.5006079	−11	−164	+22	−217	−181	−6	.5005747	.5005739	.5005743	980.685	980.685 ±0.001
	2	B5	D	July 21–22...	408.54	411.10	5.6	2.0	18.95	41	.5006127	.5006089	−12	−166	+22	−217	−181	−6	.5005748	.5005746	.5005747	980.683	
	3	B5	D	July 22......	411.14	412.79	5.6	2.4	18.78	41	.5006088	.5006064	−14	−158	+22	−217	−181	−6	.5005715	.5005727	.5005721	980.694	
	4	B6	D	July 22......	421.74	424.56	5.3	1.8	18.82	55	.5005935	.5005895	−10	−160	+9	−217	−181	−6	.5005551	.5005547	.5005549	980.685	
	5	B6	D	July 22–23...	420.70	423.58	6.4	2.0	18.88	56	.5005950	.5005909	−14	−163	+7	−217	−181	−6	.5005557	.5005552	.5005554	980.684	
	6	B6	D	July 23......	422.80	424.80	5.9	2.4	18.88	57	.5005920	.5005892	−15	−163	+7	−217	−181	−6	.5005526	.5005534	.5005530	980.693	
	7	B6	D	July 23......	421.02	424.42	5.7	2.2	18.88	57	.5005945	.5005898	−13	−163	+7	−201	−158	−6	.5005569	.5005565	.5005567	980.678	
	8	B6	D	July 23–24...	421.48	425.00	5.8	1.6	18.80	56	.5005938	.5005889	−11	−159	+7	−201	−158	−6	.5005568	.5005562	.5005565	980.679	
	9	B6	D	July 24......	424.36	425.97	5.4	2.2	18.55	56	.5005898	.5005876	−12	−149	+7	−201	−158	−6	.5005537	.5005558	.5005548	980.686	
No. 179. Oconto, Wis., John D. Powell.	1	B4	D	July 28......	331.56	334.83	5.1	1.9	17.40	42	.5007552	.5007477	−10	−101	+21	−231	−163	−13	.5007218	.5007211	.5007214	980.533	980.532 ±0.001
	2	B4	D	July 28–29...	331.24	334.67	6.9	2.5	17.40	42	.5007559	.5007481	−18	−101	+21	−231	−163	−13	.5007217	.5007207	.5007212	980.534	
	3	B4	D	July 29......	332.56	334.77	5.6	2.4	17.35	42	.5007529	.5007479	−14	−99	+21	−231	−163	−13	.5007193	.5007211	.5007202	980.538	
	4	B5	D	July 29......	386.07	390.66	6.2	2.5	17.50	32	.5006484	.5006408	−16	−105	+30	−234	−167	−13	.5006146	.5006137	.5006142	980.528	
	5	B5	D	July 29–30...	385.80	390.12	6.4	2.6	17.78	34	.5006488	.5006417	−17	−117	+29	−234	−167	−13	.5006136	.5006132	.5006134	980.531	
	6	B5	D	July 30......	386.52	389.34	5.5	2.5	18.05	34	.5006477	.5006429	−14	−128	+28	−234	−167	−13	.5006116	.5006135	.5006126	980.535	
	7	B6	D	July 30......	394.08	397.73	5.4	1.8	18.38	57	.5006352	.5006293	−10	−142	+6	−229	−174	−13	.5005964	.5005960	.5005962½	980.524	
	8	B6	D	July 30–31...	394.55	397.72	5.6	1.6	18.75	58	.5006344	.5006294	−10	−157	+5	−229	−174	−13	.5005940	.5005945	.5005942½	980.531	
	9	B6	D	July 31......	395.17	397.30	5.6	2.3	18.90	59	.5006335	.5006300	−13	−163	+5	−229	−174	−13	.5005922	.5005942	.5005932	980.535	
	10	B6	D	July 31......	393.72	398.06	2.3	1.1	18.90	59	.5006358	.5006288	−2	−163	+5	−229	−174	−13	.5005956	.5005941	.5005948	980.529	
	11	B6	D	July 31–Aug 1	393.84	397.80	5.5	1.9	18.90	59	.5006356	.5006292	−12	−163	+5	−229	−174	−13	.5005944	.5005935	.5005940	980.532	
	12	B6	D	Aug. 1......	394.48	397.72	5.7	1.9	18.90	59	.5006345	.5006294	−12	−163	+5	−229	−174	−13	.5005933	.5005937	.5005935	980.534	
No. 182. Baldwin, Wis., John D. Powell.	1	B4	D	Aug. 26.....	326.92	331.50	5.0	1.7	16.30	48	.5007659	.5007553	−9	−54	+15	−219	−127	−9	.5007383	.5007369	.5007376	980.469	980.471 ±0.001
	2	B4	D	Aug. 26–27..	326.89	330.97	5.9	2.4	16.20	50	.5007659	.5007565	−14	−50	+13	−219	−127	−9	.5007380	.5007378	.5007379	980.468	
	3	B4	D	Aug. 27.....	328.62	331.70	5.0	2.0	16.00	50	.5007619	.5007548	−10	−42	+13	−219	−127	−9	.5007352	.5007373	.5007362	980.475	
	4	B5	D	Aug. 27.....	381.20	387.26	4.9	1.7	15.95	55	.5006567	.5006464	−9	−40	+8	−229	−139	−9	.5006288	.5006275	.5006282	980.474	
	5	B5	D	Aug. 27–28..	380.16	386.06	5.4	2.0	16.05	56	.5006585	.5006484	−11	−44	+7	−229	−139	−9	.5006299	.5006288	.5006294	980.469	
	6	B5	D	Aug. 28.....	381.53	385.38	5.8	2.1	16.15	56	.5006561	.5006495	−12	−48	+7	−229	−139	−9	.5006270	.5006294	.5006282	980.474	
	7	B6	D	Aug. 28.....	391.29	396.82	5.2	1.7	16.30	55	.5006397	.5006308	−10	−54	+8	−228	−143	−9	.5006104	.5006100	.5006102	980.469	
	8	B6	D	Aug. 28–29..	390.17	396.04	5.3	1.8	16.50	56	.5006416	.5006321	−10	−63	+7	−228	−143	−9	.5006113	.5006103	.5006108	980.466	
	9	B6	D	Aug. 29.....	391.68	395.89	5.0	1.7	16.58	57	.5006391	.5006323	−9	−66	+7	−228	−143	−9	.5006086	.5006103	.5006094	980.472	
No. 183. Cumberland, Wis., John D. Powell.	1	B4	D	Sept. 1......	333.72	338.26	5.2	1.7	15.32	53	.5007503	.5007402	−10	−13	+10	−209	−129	−12	.5007269	.5007248	.5007258	980.516	980.515 ±0.001
	2	B4	D	Sept. 1–2....	333.90	337.25	4.8	1.7	15.35	54	.5007498	.5007424	−9	−15	+9	−209	−129	−12	.5007262	.5007268	.5007265	980.513	
	3	B4	D	Sept. 2......	334.78	337.82	5.5	2.1	15.35	54	.5007478	.5007412	−12	−15	+9	−209	−129	−12	.5007239	.5007253	.5007246	980.520	
	4	B5	D	Sept. 2......	388.82	393.61	5.6	1.9	15.45	54	.5006438	.5006360	−12	−19	+9	−209	−144	−12	.5006195	.5006182	.5006188	980.510	
	5	B5	D	Sept. 2–3....	389.95	391.14	5.3	1.8	15.52	54	.5006419	.5006351	−10	−22	+9	−209	−144	−12	.5006175	.5006172	.5006174	980.516	
	6	B5	D	Sept. 3......	391.22	394.14	5.5	2.0	15.52	54	.5006399	.5006351	−12	−22	+9	−209	−144	−12	.5006153	.5006170	.5006162	980.520	
	7	B6	D	Sept. 3......	400.74	405.14	4.5	1.8	15.70	54	.5006246	.5006178	−8	−29	+9	−203	−150	−12	.5006003	.5005988	.5005996	980.510	
	8	B6	D	Sept. 3–4....	401.66	405.12	4.6	1.4	15.85	55	.5006232	.5006179	−7	−36	+8	−203	−150	−12	.5005982	.5005982	.5005982	980.516	
	9	B6	D	Sept. 4......	402.10	404.29	5.2	2.0	15.90	56	.5006225	.5006191	−11	−38	+7	−203	−150	−12	.5005968	.5005987	.5005978	980.517	
No. 191. Crookston, Minn., John D. Powell.	1	B4	D	Sept. 9......	366.85	372.46	4.8	1.7	15.98	59	.5006824	.5006721	−9	−41	+4	−230	−137	−9	.5006539	.5006529	.5006534	980.799	980.799 ±0.001
	2	B4	D	Sept. 9–10...	366.20	371.45	5.6	1.9	16.28	61	.5006836	.5006739	−12	−54	+2	−230	−137	−9	.5006533	.5006529	.5006531	980.800	
	3	B4	D	Sept. 10.....	366.58	370.72	5.2	1.7	16.42	62	.5006829	.5006753	−10	−60	+2	−230	−137	−9	.5006522	.5006539	.5006530	980.801	
	4	B5	D	Sept. 10.....	435.34	442.48	5.4	1.6	16.25	57	.5005749	.5005656	−9	−52	+6	−224	−138	−9	.5005461	.5005454	.5005458	980.796	
	5	B5	D	Sept. 10–11..	436.76	444.00	5.0	1.8	15.87	58	.5005730	.5005637	−9	−36	+5	−224	−138	−9	.5005457	.5005450	.5005454	980.798	
	6	B5	D	Sept. 11.....	440.34	445.89	5.9	2.1	15.32	58	.5005684	.5005613	−12	−13	+5	−224	−138	−9	.5005431	.5005446	.5005439	980.804	
	7	B6	D	Sept. 11.....	455.20	463.08	5.2	1.6	14.82	64	.5005498	.5005404	−9	+7	−1	−216	−135	−9	.5005270	.5005257	.5005263	980.797	
	8	B6	D	Sept. 11–12..	456.20	463.32	4.8	1.4	14.58	65	.5005486	.5005402	−8	+18	−2	−216	−135	−9	.5005269	.5005266	.5005267	980.796	
	9	B6	D	Sept. 12.....	458.01	462.96	5.5	1.9	14.40	65	.5005464	.5005405	−12	+25	−2	−216	−135	−9	.5005250	.5005272	.5005261	980.798	
No. 180. Grand Rapids, Wis., John D. Powell.	1	B4	D	Aug. 4......	327.39	330.28	5.7	2.1	14.62	45	.5007648	.5007581	−12	+16	+18	−200	−134	−8	.5007462	.5007461	.5007462	980.435	980.438 ±0.001
	2	B4	D	Aug. 4–5....	327.18	330.32	6.2	2.1	14.50	45	.5007653	.5007580	−13	+21	+18	−200	−134	−8	.5007471	.5007464	.5007468	980.433	
	3	B4	D	Aug. 5......	328.16	330.75	5.7	2.5	14.38	45	.5007630	.5007570	−14	+26	+18	−200	−134	−8	.5007452	.5007458	.5007455	980.438	
	4	B5	D	Aug. 5......	380.46	385.08	5.9	2.2	14.52	49	.5006580	.5006500	−13	+20	+14	−215	−147	−8	.5006378	.5006366	.5006372	980.438	
	5	B5	D	Aug. 5–6....	380.24	384.60	5.8	1.7	14.82	50	.5006583	.5006509	−11	+8	+13	−215	−147	−8	.5006370	.5006364	.5006367	980.440	
	6	B5	D	Aug. 6......	381.58	384.24	5.4	2.4	14.95	50	.5006560	.5006515	−13	+2	+13	−215	−147	−8	.5006339	.5006362	.5006350	980.447	
	7	B6	D	Aug. 6......	389.34	394.54	6.4	2.2	15.12	68	.5006429	.5006345	−15	−5	−5	−202	−128	−8	.5006194	.5006184	.5006189	980.435	
	8	B6	D	Aug. 6–7....	389.42	394.28	5.5	1.5	15.48	70	.5006428	.5006348	−10	−20	−6	−202	−128	−8	.5006182	.5006176	.5006179	980.438	
	9	B6	D	Aug. 7......	389.82	393.23	5.8	2.1	15.65	72	.5006422	.5006365	−12	−27	−8	−202	−128	−8	.5006165	.5006182	.5006174	980.441	

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
																Rate							
					Chronometer No. 1823	Chronometer No. 1841	Initial	Final			Chronometer No. 1823	Chronometer No. 1841	Arc	Temperature	Pressure	Chronometer No. 1823	Chronometer No. 1841	Flexure	Chronometer No. 1823	Chronometer No. 1841	Mean		
				1915	*s.*	*s.*	*mm.*	*mm.*	*° C.*	*mm.*	*s.*	*s.*							*s.*	*s.*	*s.*	*Dynes*	*Dynes*
No. 181. Winona, Minn., John D. Powell.	1	B4	D	Aug. 11	319.09	321.48	6.0	1.9	20.90	65	0.5007847	0.5007789	−13	−247	−1	−228	−179	−15	0.5007343	0.5007334	0.5007338	980.484	980.485 ±0.001
	2	B4	D	Aug. 11–12	319.04	321.20	6.0	1.7	21.08	66	.5007848	.5007796	−12	−255	−2	−228	−179	−15	.5007336	.5007333	.5007334	980.486	
	3	B4	D	Aug. 12	319.19	320.41	5.9	3.1	21.28	66	.5007844	.5007815	−17	−263	−2	−228	−179	−15	.5007319	.5007339	.5007329	980.488	
	4	B5	D	Aug. 12	368.64	371.93	5.3	1.7	21.35	75	.5006791	.5006731	−10	−266	−10	−223	−168	−15	.5006267	.5006262	.5006264	980.480	
	5	B5	D	Aug. 12–13	368.79	372.22	5.7	1.7	21.38	77	.5006788	.5006726	−11	−267	−12	−223	−168	−15	.5006260	.5006253	.5006256	980.484	
	6	B5	D	Aug. 13	369.72	372.15	5.6	2.0	21.35	79	.5006771	.5006727	−12	−266	−13	−223	−168	−15	.5006242	.5006253	.5006248	980.487	
	7	B6	D	Aug. 13	379.58	383.35	5.9	2.0	21.35	55	.5006595	.5006530	−12	−266	+9	−240	−180	−15	.5006071	.5006066	.5006068	980.482	
	8	B6	D	Aug. 13–14	379.98	383.92	5.5	1.8	21.30	56	.5006588	.5006521	−11	−264	+8	−240	−180	−15	.5006066	.5006059	.5006062	980.484	
	9	B6	D	Aug. 14	380.94	383.54	5.8	2.3	21.20	57	.5006571	.5006527	−13	−260	+7	−240	−180	−15	.5006050	.5006066	.5006058	980.486	
No. 184. Cambridge, Minn., John D. Powell.	1	B4	D	Aug. 19	330.44	333.73	5.7	1.7	19.10	61	.5007577	.5007502	−11	−172	+3	−240	−172	−10	.5007147	.5007140	.5007144	980.560	980.556 ±0.001
	2	B4	D	Aug. 19–20	329.41	332.60	4.7	1.7	19.38	63	.5007601	.5007528	−8	−184	+1	−240	−172	−10	.5007160	.5007155	.5007158	980.555	
	3	B4	D	Aug. 20	330.51	332.74	4.1	1.8	19.30	64	.5007576	.5007525	−7	−180	0	−240	−172	−10	.5007139	.5007156	.5007148	980.559	
	4	B5	D	Aug. 20	384.34	388.66	5.0	1.5	19.38	67	.5006513	.5006441	−8	−184	−3	−224	−166	−10	.5006084	.5006070	.5006077	980.554	
	5	B5	D	Aug. 20–21	383.34	386.82	5.6	1.5	19.68	79	.5006530	.5006472	−10	−196	−11	−224	−166	−10	.5006076	.5006076	.5006076	980.554	
	6	B5	D	Aug. 21	384.24	386.38	5.4	2.0	19.68	88	.5006515	.5006478	−11	−196	−22	−224	−166	−10	.5006052	.5006073	.5006062	980.560	
	7	B6	D	Aug. 21	395.80	400.58	5.4	1.9	19.72	50	.5006324	.5006248	−11	−198	+13	−225	−163	−10	.5005893	.5005879	.5005886	980.553	
	8	B6	D	Aug. 21–22	395.08	399.30	5.3	1.6	20.15	53	.5006336	.5006269	−9	−216	+10	−225	−163	−10	.5005886	.5005881	.5005884	980.554	
	9	B6	D	Aug. 22	395.87	398.15	5.0	1.9	20.38	54	.5006323	.5006287	−10	−225	+10	−225	−163	−10	.5005863	.5005889	.5005876	980.557	
No. 185. Brainerd, Minn., John D. Powell.	1	B4	D	Sept. 15	338.42	342.24	5.7	1.7	20.98	54	.5007398	.5007315	−11	−251	+10	−222	−144	−8	.5006916	.5006911	.5006914	980.650	980.649 ±0.001
	2	B4	D	Sept. 15–16	338.21	342.40	5.9	2.3	20.92	55	.5007403	.5007312	−14	−248	+9	−222	−144	−8	.5006920	.5006907	.5006914	980.650	
	3	B4	D	Sept. 16	339.22	341.92	4.5	1.7	21.00	56	.5007381	.5007323	−8	−251	+8	−222	−144	−8	.5006900	.5006920	.5006910	980.652	
	4	B5	D	Sept. 16	394.30	399.90	5.3	1.8	21.38	57	.5006348	.5006259	−10	−267	+7	−221	−137	−8	.5005849	.5005844	.5005846	980.644	
	5	B5	D	Sept. 16–17	393.93	399.62	5.5	1.8	21.48	59	.5006354	.5006264	−11	−272	+5	−221	−137	−8	.5005847	.5005841	.5005844	980.645	
	6	B5	D	Sept. 17	395.24	399.71	5.7	2.2	21.52	60	.5006333	.5006262	−13	−273	+4	−221	−137	−8	.5005822	.5005835	.5005828	980.652	
	7	B6	D	Sept. 17	406.13	411.38	4.4	1.4	21.97	54	.5006163	.5006084	−7	−292	+10	−218	−144	−8	.5005648	.5005643	.5005646	980.648	
	8	B6	D	Sept. 17–18	405.80	411.55	5.1	1.6	22.08	56	.5006168	.5006082	−8	−297	+8	−218	−144	−8	.5005645	.5005633	.5005639	980.650	
	9	B6	D	Sept. 18	407.38	410.56	4.8	2.1	21.98	56	.5006144	.5006097	−10	−292	+8	−218	−144	−8	.5005624	.5005651	.5005638	980.651	
No. 196. Faribault, Minn., John D. Powell.	1	B4	D	Sept. 22	328.58	333.74	4.9	1.9	16.12	50	.5007620	.5007502	−10	−47	+13	−256	−156	−11	.5007309	.5007291	.5007300	980.499	980.504 ±0.001
	2	B4	D	Sept. 22–23	328.96	333.71	4.5	1.8	16.45	50	.5007611	.5007503	−8	−61	+13	−256	−156	−11	.5007288	.5007280	.5007284	980.505	
	3	B4	D	Sept. 23	330.40	333.46	5.0	1.7	16.42	50	.5007578	.5007509	−9	−60	+13	−256	−156	−11	.5007255	.5007286	.5007270	980.511	
	4	B5	D	Sept. 23	382.64	388.19	5.4	1.9	16.75	51	.5006542	.5006448	−11	−73	+12	−234	−148	−11	.5006225	.5006217	.5006221	980.498	
	5	B5	D	Sept. 23–24	382.46	387.28	4.5	1.6	17.22	53	.5006545	.5006463	−7	−93	+10	−234	−148	−11	.5006210	.5006214	.5006212	980.501	
	6	B5	D	Sept. 24	382.62	387.52	4.8	1.8	17.42	54	.5006543	.5006460	−9	−101	+9	−234	−148	−11	.5006197	.5006200	.5006198	980.507	
	7	B6	D	Sept. 24	393.28	398.65	4.6	1.8	17.68	50	.5006364	.5006279	−8	−112	+13	−232	−154	−11	.5006014	.5006007	.5006010	980.505	
	8	B6	D	Sept. 24–25	392.13	397.40	4.5	1.3	18.10	50	.5006383	.5006299	−6	−130	+13	−232	−154	−11	.5006017	.5006011	.5006014	980.503	
	9	B6	D	Sept. 25	392.44	395.74	4.7	2.2	18.38	50	.5006379	.5006325	−10	−142	+13	−232	−154	−11	.5005997	.5006021	.5006009	980.505	
No. 197. St. James, Minn., John D. Powell.	1	B4	D	Sept. 29	317.39	321.56	5.0	1.7	18.88	54	.5007889	.5007787	−9	−163	+10	−243	−148	−13	.5007471	.5007464	.5007468	980.433	980.437 ±0.001
	2	B4	D	Sept. 29–30	318.00	322.19	5.0	1.9	18.62	55	.5007874	.5007771	−10	−152	+9	−243	−148	−13	.5007465	.5007457	.5007461	980.436	
	3	B4	D	Sept. 30	320.14	323.26	6.3	2.4	18.00	55	.5007821	.5007746	−15	−126	+8	−243	−148	−13	.5007432	.5007452	.5007442	980.444	
	4	B5	D	Sept. 30	370.18	375.28	4.8	1.7	17.88	59	.5006762	.5006670	−9	−121	+5	−239	−157	−13	.5006385	.5006375	.5006380	980.435	
	5	B5	D	Sept. 30–Oct. 1	370.27	375.50	5.1	1.9	17.95	61	.5006761	.5006667	−10	−124	+3	−239	−157	−13	.5006378	.5006366	.5006372	980.438	
	6	B5	D	Oct. 1	372.48	375.70	5.4	1.9	17.62	61	.5006720	.5006663	−11	−110	+3	−239	−157	−13	.5006350	.5006375	.5006362	980.442	
	7	B6	D	Oct. 1	380.44	386.10	4.7	1.8	17.92	62	.5006580	.5006483	−9	−122	+2	−234	−152	−13	.5006204	.5006189	.5006196	980.432	
	8	B6	D	Oct. 1–2	379.95	385.08	4.6	1.5	18.42	63	.5006588	.5006500	−7	−143	+1	−234	−152	−13	.5006192	.5006186	.5006189	980.435	
	9	B6	D	Oct. 2	381.16	384.81	4.7	1.9	18.45	64	.5006568	.5006505	−9	−145	0	−234	−152	−13	.5006167	.5006186	.5006176	980.440	

No. 199. Dawson, Minn., John D. Powell.	1	B4	D	Oct. 8	338.06	342.15	4.6	1.7	14.38	51	.5007406	.5007317	- 8	+26	+11	-214	-139	-11	.5007210	.5007196	.5007203	980.537	980.532 ±0.001
	2	B4	D	Oct. 8-9	337.93	341.60	4.7	1.6	14.38	52	.5007409	.5007329	- 8	+26	+11	-214	-139	-11	.5007213	.5007208	.5007210	980.534	
	3	B4	D	Oct. 9	338.46	340.84	4.9	2.0	14.40	52	.5007397	.5007345	-10	+25	+10	-214	-139	-11	.5007197	.5007220	.5007208	980.535	
	4	B5	D	Oct. 9	395.26	400.18	4.8	1.8	14.38	55	.5006333	.5006255	- 9	+26	+ 8	-213	-138	-11	.5006134	.5006131	.5006132	980.532	
	5	B5	D	Oct. 9-10	394.57	399.20	5.0	1.6	14.48	56	.5006344	.5006270	- 8	+22	+ 7	-213	-138	-11	.5006141	.5006142	.5006142	980.528	
	6	B5	D	Oct. 10	395.12	399.05	5.2	2.0	14.58	56	.5006336	.5006273	-11	+18	+ 7	-213	-138	-11	.5006126	.5006138	.5006132	980.532	
	7	B6	D	Oct. 10	405.98	411.71	4.9	2.0	14.70	55	.5006165	.5006080	-10	+13	+ 8	-208	-138	-11	.5005957	.5005942	.5005950	980.528	
	8	B6	D	Oct. 10-11	406.10	411.02	4.3	1.4	15.00	56	.5006164	.5006090	- 7	0	+ 7	-208	-138	-11	.5005945	.5005941	.5005943	980.531	
	9	B6	D	Oct. 11	405.80	409.54	5.2	2.0	15.28	57	.5006168	.5006112	-11	-12	+ 6	-208	-138	-11	.5005932	.5005946	.5005939	980.532	
No. 200. Cokato, Minn., John D. Powell.	1	B4	D	Oct. 15	328.94	333.90	5.5	1.9	18.95	66	.5007612	.5007498	-12	-166	- 2	-235	-132	- 7	.5007190	.5007179	.5007184	980.545	980.542 ±0.001
	2	B4	D	Oct. 15-16	328.14	332.84	5.3	1.6	19.40	67	.5007630	.5007522	- 9	-184	- 2	-235	-132	- 7	.5007193	.5007188	.5007190	980.542	
	3	B4	D	Oct. 16	329.42	333.25	4.6	1.7	19.18	67	.5007601	.5007513	- 8	-175	- 3	-235	-132	- 7	.5007173	.5007188	.5007180	980.546	
	4	B5	D	Oct. 16	382.28	388.88	5.4	1.5	19.15	70	.5006548	.5006437	- 9	-174	- 5	-235	-139	- 7	.5006118	.5006103	.5006110	980.541	
	5	B5	D	Oct. 16-17	382.31	388.38	4.6	1.3	19.15	78	.5006548	.5006445	- 7	-174	-13	-235	-139	- 7	.5006112	.5006105	.5006108	980.542	
	6	B5	D	Oct. 17	383.80	388.03	4.8	1.7	18.90	83	.5006522	.5006451	- 9	-163	-18	-235	-139	- 7	.5006090	.5006115	.5006102	980.544	
	7	B5	D	Oct. 17	382.70	388.88	5.0	1.6	18.82	87	.5006541	.5006437	- 8	-160	-22	-235	-139	- 7	.5006109	.5006101	.5006105	980.543	
	8	B5	D	Oct. 17-18	382.82	388.62	4.2	1.2	18.62	91	.5006539	.5006442	- 6	-152	-25	-235	-139	- 7	.5006114	.5006113	.5006114	980.540	
	9	B5	D	Oct. 18	384.42	388.61	4.6	2.0	18.50	96	.5006512	.5006442	- 9	-147	-30	-235	-139	- 7	.5006084	.5006110	.5006097	980.546	
	10	B6	D	Oct. 18	394.47	400.29	3.9	1.0	19.38	60	.5006346	.5006253	- 5	-184	+ 4	-225	-140	- 7	.5005929	.5005921	.5005925	980.538	
	11	B6	D	Oct. 18-19	393.76	399.26	4.6	1.3	19.70	61	.5006357	.5006269	- 7	-197	+ 3	-225	-140	- 7	.5005924	.5005921	.5005922	980.539	
	12	B6	D	Oct. 19	395.22	399.51	4.0	2.0	19.50	63	.5006334	.5006266	- 8	-189	+ 1	-225	-140	- 7	.5005906	.5005923	.5005914	980.542	
No. 203. Duluth, Minn., John D. Powell.	1	B4	D	Oct. 22	342.79	347.26	4.3	1.4	26.42	74	.5007304	.5007210	- 7	-479	- 8	-180	- 92	- 7	.5006623	.5006617	.5006620	980.766	980.758 ±0.001
	2	B4	D	Oct. 22-23	343.12	347.34	4.0	1.5	26.60	54	.5007297	.5007208	- 6	-486	+11	-180	- 92	- 7	.5006629	.5006628	.5006628	980.762	
	3	B4	D	Oct. 23	342.84	346.53	5.7	2.2	26.55	54	.5007303	.5007224	-13	-484	+11	-180	- 92	- 7	.5006630	.5006639	.5006634	980.760	
	4	B5	D	Oct. 23	402.56	408.84	4.5	1.5	26.60	61	.5006218	.5006123	- 7	-486	+ 4	-143	- 51	- 7	.5005579	.5005576	.5005578	980.750	
	5	B5	D	Oct. 23-24	402.88	409.25	5.8	1.9	26.78	63	.5006213	.5006116	-12	-494	+ 3	-143	- 51	- 7	.5005560	.5005555	.5005558	980.757	
	6	B5	D	Oct. 24	402.92	408.21	4.4	2.0	26.82	63	.5006213	.5006132	- 9	-495	+ 2	-143	- 51	- 7	.5005561	.5005572	.5005566	980.754	
	7	B6	D	Oct. 26	418.08	421.01	5.2	1.8	26.72	53	.5005987	.5005945	-10	-491	+11	-132	- 91	- 7	.5005358	.5005357	.5005358	980.760	
	8	B6	D	Oct. 26-27	416.62	419.79	4.5	1.2	27.08	54	.5006008	.5005962	- 6	-506	+11	-132	- 91	- 7	.5005368	.5005363	.5005366	980.757	
	9	B6	D	Oct. 27	416.28	418.46	4.2	2.3	27.00	54	.5006012	.5005981	- 9	-503	+11	-132	- 91	- 7	.5005372	.5005382	.5005377	980.753	
No. 204. Osage, Iowa, John D. Powell.	1	B4	D	Oct. 30	307.34	311.47	5.7	1.5	19.55	63	.5008148	.5008040	-10	-191	+ 1	-202	-106	-12	.5007734	.5007722	.5007728	980.332	980.339 ±0.001
	2	B4	D	Oct. 30-31	307.04	311.06	6.2	2.0	19.72	71	.5008156	.5008050	-13	-198	- 6	-202	-106	-12	.5007725	.5007715	.5007720	980.335	
	3	B4	D	Oct. 31	307.93	310.52	4.0	1.4	19.85	76	.5008132	.5008064	- 6	-203	-11	-202	-106	-12	.5007698	.5007726	.5007712	980.338	
	4	B5	D	Nov. 1	353.37	360.00	5.4	1.9	19.72	59	.5007085	.5006954	-11	-198	+ 5	-235	-111	-12	.5006634	.5006627	.5006630	980.337	
	5	B5	D	Nov. 1-2	352.86	358.82	4.0	1.7	20.35	63	.5007095	.5006977	- 7	-224	+ 1	-235	-111	-12	.5006618	.5006624	.5006621	980.341	
	6	B5	D	Nov. 2	353.15	359.23	4.9	1.0	20.15	80	.5007089	.5006969	- 6	-216	-14	-235	-111	-12	.5006606	.5006610	.5006608	980.346	
	7	B6	D	Nov. 2	360.02	367.45	4.9	1.5	20.38	88	.5006954	.5006813	- 8	-225	-22	-231	-104	-12	.5006456	.5006442	.5006449	980.333	
	8	B6	D	Nov. 2-3	361.12	367.78	4.6	1.6	20.68	82	.5006933	.5006806	- 7	-238	-16	-231	-104	-12	.5006429	.5006429	.5006429	980.341	
	9	B6	D	Nov. 3	362.56	368.88	5.0	1.0	20.25	90	.5006905	.5006786	- 7	-220	-24	-231	-104	-12	.5006411	.5006419	.5006415	980.346	
No. 207. Wheeling, W. Va., John D. Powell.	1	B4	D	Nov. 9	277.92	282.18	5.0	1.6	25.65	63	.5009011	.5008876	- 8	-446	+ 3	-177	- 67	-10	.5008372	.5008348	.5008360	980.084	980.085 ±0.001
	2	B4	D	Nov. 9-10	279.40	282.68	5.7	1.9	24.95	63	.5008964	.5008860	-12	-417	+ 2	-177	- 67	-10	.5008350	.5008356	.5008353	980.087	
	3	B4	D	Nov. 10	280.84	283.72	4.8	1.8	24.18	63	.5008918	.5008827	- 9	-385	+ 2	-177	- 67	-10	.5008339	.5008358	.5008348	980.089	
	4	B5	D	Nov. 10	319.18	323.50	5.8	2.1	23.55	65	.5007845	.5007740	-12	-358	0	-175	- 81	-10	.5007290	.5007279	.5007284	980.081	
	5	B5	D	Nov. 10-11	319.66	323.69	4.3	1.2	23.78	62	.5007833	.5007735	- 6	-368	+ 3	-175	- 81	-10	.5007277	.5007273	.5007275	980.085	
	6	B5	D	Nov. 11	319.16	322.42	4.7	1.5	24.42	68	.5007845	.5007766	- 8	-395	- 2	-175	- 81	-10	.5007255	.5007270	.5007262	980.090	
	7	B6	D	Nov. 11	324.24	328.74	5.1	1.8	25.42	61	.5007722	.5007616	- 9	-437	+ 4	-156	- 67	-10	.5007114	.5007097	.5007106	980.075	
	8	B6	D	Nov. 11-12	323.64	327.58	5.1	1.3	26.45	63	.5007737	.5007643	- 8	-480	+ 3	-156	- 67	-10	.5007086	.5007081	.5007084	980.084	
	9	B6	D	Nov. 12	323.32	326.21	3.0	1.1	27.20	64	.5007744	.5007676	- 3	-511	+ 2	-156	- 67	-10	.5007066	.5007087	.5007076	980.087	
No 210. Harrisburg, Pa., John D. Powell.	1	B4	D	Nov. 23	301.31	305.55	5.2	1.6	11.80	67	.5008311	.5008196	- 9	+134	- 4	-200	- 90	-11	.5008221	.5008216	.5008218	980.140	980.139 ±0.001
	2	B4	D	Nov. 23-24	300.02	304.27	5.3	1.5	12.18	84	.5008346	.5008230	- 9	+118	-20	-200	- 90	-11	.5008224	.5008218	.5008221	980.138	
	3	B4	D	Nov. 24	300.33	303.84	4.6	1.4	12.40	98	.5008338	.5008242	- 7	+109	-34	-200	- 90	-11	.5008195	.5008209	.5008202	980.146	
	4	B5	D	Nov. 24	344.76	350.01	4.9	1.6	12.55	60	.5007262	.5007153	- 8	+103	+ 3	-201	- 93	-11	.5007148	.5007147	.5007148	980.135	
	5	B5	D	Nov. 24-25	344.30	349.70	4.8	1.3	12.68	73	.5007272	.5007159	- 7	+ 97	-10	-201	- 93	-11	.5007140	.5007135	.5007138	980.138	
	6	B5	D	Nov. 25	344.82	349.20	4.6	2.2	12.65	84	.5007261	.5007170	-10	+ 98	-20	-201	- 93	-11	.5007117	.5007134	.5007126	980.143	
	7	B6	D	Nov. 25	353.74	359.40	4.9	1.4	12.72	62	.5007077	.5006966	- 8	+ 96	+ 1	-200	- 91	-11	.5006955	.5006953	.5006954	980.135	
	8	B6	D	Nov. 25-26	352.94	358.88	4.8	1.2	12.88	74	.5007093	.5006975	- 7	+ 89	-11	-200	- 91	-11	.5006953	.5006944	.5006948	980.137	
	9	B6	D	Nov. 26	354.15	358.70	4.7	2.0	12.72	84	.5007069	.5006979	- 9	+ 96	-20	-200	- 91	-11	.5006925	.5006944	.5006934	980.143	
No. 211. Pittsburg, Pa., John D. Powell.	1	B4	D	Nov. 16	294.35	299.30	4.6	1.6	15.12	57	.5008508	.5008367	- 7	- 5	+ 6	-221	- 87	- 6	.5008275	.5008268	.5008272	980.118	980.118 ±0.001
	2	B4	D	Nov. 16-17	294.12	299.14	5.6	1.8	14.92	59	.5008514	.5008371	-11	+ 3	+ 4	-221	- 87	- 6	.5008283	.5008274	.5008278	980.116	
	3	B4	D	Nov. 17	295.12	298.96	4.6	1.8	15.05	61	.5008485	.5008376	- 8	- 2	+ 2	-221	- 87	- 6	.5008250	.5008275	.5008262	980.122	
	4	B5	D	Nov. 17	336.05	341.98	5.1	1.9	15.40	63	.5007450	.5007321	-10	-17	0	-214	- 93	- 6	.5007203	.5007195	.5007199	980.115	
	5	B5	D	Nov. 17-18	336.38	342.19	5.2	1.3	15.50	66	.5007443	.5007316	- 8	-21	- 3	-214	- 93	- 6	.5007191	.5007185	.5007188	980.119	
	6	B5	D	Nov. 18	337.26	341.91	5.1	2.0	15.42	69	.5007424	.5007323	-10	-18	- 5	-214	- 93	- 6	.5007171	.5007191	.5007181	980.121	
	7	B6	D	Nov. 18	344.91	350.86	5.0	1.5	15.55	61	.5007259	.5007136	- 8	-23	+ 2	-221	-100	- 6	.5007003	.5007001	.5007002	980.116	
	8	B6	D	Nov. 18-19	344.40	350.36	5.0	0.8	15.92	64	.5007270	.5007146	- 7	-39	0	-221	-100	- 6	.5006997	.5006994	.5006996	980.118	
	9	B6	D	Nov. 19	343.07	348.60	5.4	2.7	16.32	66	.5007298	.5007182	-14	-55	- 2	-221	-100	- 6	.5007000	.5007005	.5007003	980.116	

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1823	Chronometer No. 1841	Initial	Final			Chronometer No. 1823	Chronometer No. 1841	Arc	Temperature	Pressure	Rate Chronometer No. 1823	Rate Chronometer No. 1841	Flexure	Chronometer No. 1823	Chronometer No. 1828	Mean		
				1916	*s.*	*s.*	*mm.*	*mm.*	° *C.*	*mm.*	*s.*	*s.*							*s.*	*s.*	*s.*	*Dynes*	*Dynes*
No. 216. Fredericksburg, Va., John D. Powell.	1	B4	D	Jan. 12	278.86	282.95	4.8	1.7	20.30	51	0.5008981	0.5008852	−9	−222	+12	−239	−110	−8	0.5008515	0.5008515	0.5008515	980.023	980.027 ±0.001
	2	B4	D	Jan. 12–13	278.94	283.43	4.5	1.7	20.42	52	.5008979	.5008836	−8	−227	+11	−239	−110	−8	.5008508	.5008494	.5008501	980.029	
	3	B4	D	Jan. 13	279.30	282.81	4.7	2.1	20.50	53	.5008967	.5008856	−9	−230	+11	−239	−110	−8	.5008492	.5008510	.5008501	980.029	
	4	B5	D	Jan. 13	316.62	322.14	4.4	1.5	20.68	60	.5007908	.5007773	−7	−238	+4	−236	−103	−8	.5007423	.5007421	.5007422	980.027	
	5	B5	D	Jan. 13–14	316.87	322.55	4.6	1.2	20.55	60	.5007902	.5007763	−6	−233	+4	−236	−103	−8	.5007423	.5007417	.5007420	980.028	
	6	B5	D	Jan. 14	317.56	322.66	4.7	2.1	20.42	60	.5007885	.5007760	−9	−227	+4	−236	−103	−8	.5007409	.5007417	.5007413	980.031	
	7	B6	D	Jan. 14	325.01	330.88	5.2	1.8	20.45	52	.5007704	.5007567	−10	−228	+11	−230	−93	−8	.5007239	.5007239	.5007239	980.024	
	8	B6	D	Jan. 14–15	325.46	331.62	5.0	1.0	20.42	54	.5007693	.5007550	−7	−227	+10	−230	−93	−8	.5007231	.5007225	.5007228	980.028	
	9	B6	D	Jan. 15	326.02	330.73	4.9	2.8	20.35	53	.5007680	.5007570	−13	−224	+11	−230	−93	−8	.5007216	.5007243	.5007230	980.027	
No. 217. Dover, Del., John D. Powell.	1	B4	D	Dec. 1	291.40	294.38	5.4	1.7	16.28	61	.5008594	.5008507	−10	−54	+2	−194	−122	−9	.5008329	.5008314	.5008322	980.099	980.099 ±0.001
	2	B4	D	Dec. 1–2	291.62	293.89	4.6	1.0	16.25	63	.5008587	.5008521	−6	−52	0	−194	−122	−9	.5008326	.5008332	.5008329	980.096	
	3	B4	D	Dec. 2	292.22	294.36	4.4	2.0	16.28	65	.5008570	.5008507	−9	−54	−2	−194	−122	−9	.5008302	.5008311	.5008306	980.105	
	4	B5	D	Dec. 2	330.15	333.56	5.2	1.6	17.40	61	.5007584	.5007506	−9	−101	+3	−192	−129	−9	.5007276	.5007261	.5007268	980.088	
	5	B5	D	Dec. 2–3	330.94	333.70	5.0	1.5	17.72	63	.5007566	.5007503	−8	−114	+1	−192	−129	−9	.5007244	.5007244	.5007244	980.097	
	6	B5	D	Dec. 3	333.10	334.94	5.2	2.3	17.18	65	.5007516	.5007475	−12	−91	−1	−192	−129	−9	.5007211	.5007233	.5007222	980.106	
	7	B6	D	Dec. 3	339.51	342.84	5.4	1.5	17.48	59	.5007375	.5007303	−9	−104	+5	−192	−127	−9	.5007066	.5007059	.5007063	980.092	
	8	B6	D	Dec. 3–4	340.58	343.57	5.0	1.4	17.40	61	.5007351	.5007287	−8	−101	+3	−192	−127	−9	.5007044	.5007045	.5007044	980.100	
	9	B6	D	Dec. 4	342.44	344.87	4.5	2.4	16.90	62	.5007311	.5007260	−11	−80	+2	−192	−127	−9	.5007021	.5007035	.5007028	980.106	
No. 215. Crisfield, Md., John D. Powell.	1	B4	D	Dec. 8	287.49	290.19	5.2	1.4	12.15	74	.5008711	.5008630	−9	+119	−11	−196	−122	−7	.5008607	.5008600	.5008604	979.989	979.985 ±0.001
	2	B4	D	Dec. 8–9	286.16	288.66	5.6	1.2	12.60	91	.5008752	.5008676	−9	+101	−27	−196	−122	−7	.5008614	.5008612	.5008613	979.985	
	3	B4	D	Dec. 9	286.28	288.40	6.2	2.6	12.85	78	.5008748	.5008684	−16	+90	−15	−196	−122	−7	.5008604	.5008614	.5008609	979.987	
	4	B5	D	Dec. 9	324.74	328.10	5.5	1.7	13.40	69	.5007710	.5007631	−11	+67	−6	−199	−120	−7	.5007554	.5007554	.5007554	979.976	
	5	B5	D	Dec. 9–10	324.74	328.34	4.9	1.0	13.50	86	.5007710	.5007626	−6	+63	−22	−199	−120	−7	.5007539	.5007534	.5007536	979.982	
	6	B5	D	Dec. 10	327.33	330.48	4.6	2.2	13.10	70	.5007649	.5007576	−10	+80	−7	−199	−120	−7	.5007506	.5007512	.5007509	979.993	
	7	B6	D	Dec. 10	334.65	339.15	5.5	1.5	12.92	68	.5007482	.5007382	−10	+87	−5	−189	−103	−7	.5007358	.5007344	.5007351	979.980	
	8	B6	D	Dec. 10–11	335.23	339.06	4.9	0.9	12.72	86	.5007468	.5007384	−6	+96	−22	−189	−103	−7	.5007340	.5007342	.5007341	979.983	
	9	B6	D	Dec. 11	337.22	340.18	5.2	2.4	12.25	81	.5007425	.5007360	−13	+115	−18	−189	−103	−7	.5007313	.5007334	.5007324	979.990	
					1828	**1838**					**1828**	**1838**				**1828**	**1838**		**1828**	**1838**			
Washington, D. C., Coast and Geodetic Survey Office, John D. Powell.	1	B4	D	Jan. 20	306.66	316.14	4.3	1.4	8.98	63	.5008166	.5007920	−7	+252	−1	−120	+133	−7	.5008283	.5008290	.5008286	....	
	2	B4	D	Jan. 20–21	305.41	315.25	5.5	1.9	9.42	59	.5008199	.5007943	−12	+234	+3	−120	+133	−7	.5008297	.5008294	.5008296	....	
	3	B4	D	Jan. 21	304.67	314.85	4.7	1.8	9.72	65	.5008219	.5007953	−9	+221	−3	−120	+133	−7	.5008301	.5008288	.5008294	....	
	4	B5	D	Jan. 21	349.51	362.54	4.5	1.5	10.60	56	.5007163	.5006905	−7	+184	+6	−139	+131	−7	.5007200	.5007212	.5007206	....	
	5	B5	D	Jan. 21–22	347.35	361.22	5.1	1.7	11.32	61	.5007208	.5006931	−9	+154	+2	−139	+131	−7	.5007209	.5007202	.5007206	....	
	6	B5	D	Jan. 22	345.43	359.49	5.0	2.0	11.88	63	.5007247	.5006964	−10	+131	−1	−139	+131	−7	.5007221	.5007208	.5007214	....	
	7	B6	D	Jan. 24	353.56	368.30	5.1	1.7	13.10	54	.5007081	.5006797	−9	+80	+8	−140	+144	−7	.5007013	.5007013	.5007013	....	
	8	B6	D	Jan. 24–25	353.34	368.11	4.9	1.8	13.05	58	.5007085	.5006801	−9	+82	+5	−140	+144	−7	.5007016	.5007016	.5007016	....	
	9	B6	D	Jan. 25	353.30	368.06	5.2	1.9	12.98	62	.5007086	.5006802	−11	+85	+1	−140	+144	−7	.5007014	.5007014	.5007014	....	
				1914.	**1838**	**3477**					**1838**	**3477**				**1838**	**3477**		**1838**	**3477**			
Washington, D. C., Coast d Geodetic Survey Office, C. L. Garner.	1	A4	D	July 8–9	303.64	297.84	4.7	1.8	21.95	59	.5008247	.5008408	−9	−291	+5	+470*a*	+292*a*	−10	.5008412	.5008395	.5008404	....	
	2	A4	D	July 9	304.22	298.25	5.4	2.1	22.00	59	.5008231	.5008396	−12	−293	+5	+470	+292	−10	.5008391	.5008378	.5008384	....	
	3	A4	D	July 9	306.67	298.94	5.2	1.5	22.05	60	.5008166	.5008377	−9	−295	+4	+470	+292	−10	.5008326	.5008359	.5008342	....	
	4	A5	D	July 9–10	390.85	378.36	5.4	2.0	22.37	53	.5006404	.5006616	−11	−309	+11	+523	+329	−10	.5006608	.5006626	.5006617	....	
	5	A5	D	July 10	388.44	378.56	5.2	2.1	22.40	56	.5006444	.5006613	−11	−310	+8	+523	+329	−10	.5006644	.5006619	.5006632	....	
	6	A5	D	July 10	389.62	378.64	5.3	1.7	22.40	57	.5006425	.5006611	−10	−310	+7	+523	+329	−10	.5006625	.5006617	.5006621	....	
	7	A6	D	July 10–11	413.12	(*b*)	5.0	2.1	22.97	53	.5006059	(*b*)	−10	−334	+11	+567	(*b*)	−10	.5006283	(*b*)	....	....	
	8	A6	D	July 11	413.10	(*b*)	5.5	2.3	22.73	55	.5006059	(*b*)	−13	−324	+9	+567	(*b*)	−10	.5006288	(*b*)	....	....	
	9	A6	D	July 11	413.33	(*b*)	5.1	1.7	22.70	55	.5006056	(*b*)	−9	−323	+9	+567	(*b*)	−10	.5006290	(*b*)	....	....	

					1836	1838					1836	1838				1836	1838		1836	1838			
Washington, D. C., Coast and Geodetic Survey Office, C. L. Garner.	1	A4	D	July 21......	287.27	302.52	5.3	1.8	22.85	55	.5008718	.5008277	− 10	−329	+ 9	− 5[c]	+441[c]	− 10	.5008373	.5008378	.5008376	....	
	2	A4	D	July 21-22...	286.56	301.89	5.6	2.1	22.97	56	.5008739	.5008295	− 12	−334	+ 8	− 5	+441	− 10	.5008386	.5008388	.5008387	....	
	3	A4	D	July 22......	286.22	301.90	5.1	2.0	23.03	56	.5008750	.5008295	− 10	−336	+ 8	− 5	+441	− 10	.5008397	.5008388	.5008392	....	
	4	A5	D	July 22......	356.92	382.84	5.2	1.9	23.33	60	.5007015	.5006539	− 11	−349	+ 5	− 2	+480	− 10	.5006648	.5006654	.5006651	....	
	5	A5	D	July 22-23...	356.86	384.04	5.2	1.9	23.40	62	.5007016	.5006518	− 11	−352	+ 3	− 2	+480	− 10	.5006644	.5006628	.5006636	....	
	6	A5	D	July 23......	357.32	383.62	5.7	2.1	23.47	63	.5007007	.5006526	− 12	−355	+ 2	− 2	+480	− 10	.5006630	.5006631	.5006630	....	
	7	A6	D	July 23......	376.83	404.30	5.3	1.9	23.80	56	.5006643	.5006191	− 11	−369	+ 9	+ 14	+449	− 10	.5006276	.5006259	.5006268	....	
	8	A6	D	July 23-24...	376.46	402.54	5.3	2.0	23.95	58	.5006650	.5006218	− 11	−375	+ 7	+ 14	+449	− 10	.5006275	.5006278	.5006276	....	
	9	A6	D	July 24......	376.74	401.85	5.4	1.9	24.10	58	.5006645	.5006229	− 11	−381	+ 6	+ 14	+449	− 10	.5006263	.5006282	.5006272	....	
					1838	3477					1838	3477				1838	3477		1838	3477			
No. 125. Atlantic City, N. J., C. L. Garner.	1	A4	D	Sept. 5......	309.88	300.98	5.0	2.0	22.37	54	.5008081	.5008320	− 10	−309	+ 10	+633	+388	− 8	.5008397	.5008391	.5008394	980.106	980.112 ±0.001
	2	A4	D	Sept. 5-6....	310.28	300.93	5.6	1.6	22.27	57	.5008070	.5008321	− 10	−305	+ 7	+633	+388	− 8	.5008387	.5008394	.5008390	980.107	
	3	A4	D	Sept. 6......	310.48	301.36	5.4	2.5	22.17	59	.5008065	.5008309	− 13	−300	+ 5	+633	+388	− 8	.5008382	.5008381	.5008381	980.111	
	10	A6	D	Sept. 8......	422.51	409.30	5.6	2.0	21.83	56	.5005921	.5006116	− 12	−286	+ 8	+641	+449	− 8	.5006267	.5006267	.5006267	980.117	
	11	A6	D	Sept. 8-9....	423.32	410.08	5.6	1.9	21.47	53	.5005913	.5006104	− 12	−271	+ 11	+641	+449	− 8	.5006271	.5006273	.5006274	980.114	
	12	A6	D	Sept. 9......	425.02	411.84	5.5	1.9	21.00	54	.5005889	.5006078	− 12	−251	+ 10	+641	+449	− 8	.5006269	.5006266	.5006268	980.116	
					1828	1838					1828	1838				1828	1838		1828	1838			
No. 126. Bridgehampton, N. Y., C. L. Garner.	1	A4	D	Sept. 16.....	305.72	329.14	5.5	1.9	17.66	57	.5008191	.5007607	− 11	−111	+ 7	− 49	+546	− 5	.5008022	.5008033	.5008028	980.249	980.252 ±0.000
	2	A4	D	Sept. 16-17..	305.55	329.47	5.7	2.0	17.81	53	.5008196	.5007600	− 12	−118	+ 10	− 49	+546	− 5	.5008022	.5008021	.5008022	980.251	
	3	A4	D	Sept. 17.....	305.79	330.15	5.6	1.9	17.71	53	.5008189	.5007584	− 11	−114	+ 10	− 49	+546	− 5	.5008020	.5008010	.5008015	980.254	
	4	A5	D	Sept. 17.....	387.48	427.10	4.7	1.8	18.08	57	.5006460	.5005860	− 9	−129	+ 7	− 51	+549	− 5	.5006273	.5006273	.5006273	980.253	
	5	A5	D	Sept. 17-18..	386.76	426.12	4.9	1.9	18.28	60	.5006472	.5005874	− 10	−137	+ 4	− 51	+549	− 5	.5006273	.5006275	.5006274	980.253	
	6	A5	D	Sept. 18.....	386.94	426.44	5.4	2.0	18.21	60	.5006469	.5005869	− 11	−134	+ 4	− 51	+549	− 5	.5006272	.5006272	.5006272	980.254	
	7	A6	D	Sept. 18.....	407.67	451.18	5.6	1.8	18.61	58	.5006140	.5005547	− 11	−151	+ 6	− 57	+537	− 5	.5005922	.5005923	.5005922	980.252	
	8	A6	D	Sept. 18-19..	406.98	450.35	5.2	1.8	18.83	61	.5006150	.5005558	− 10	−160	+ 3	− 57	+537	− 5	.5005921	.5005923	.5005922	980.252	
	9	A6	D	Septl 19.....	407.30	450.87	5.1	1.9	18.71	61	.5006146	.5005551	− 10	−155	+ 3	− 57	+537	− 5	.5005922	.5005921	.5005922	980.252	
No. 127. Chatham, Mass., C. L. Garner.	1	A4	D	Sept. 22.....	309.40	329.52	5.5	1.9	20.60	56	.5008093	.5007599	− 11	−235	+ 8	− 35	+448	− 7	.5007813	.5007802	.5007808	980.335	980.333 ±0.001
	2	A4	D	Sept. 22-23..	310.90	330.50	5.1	1.8	19.53	57	.5008054	.5007576	− 9	−190	+ 7	− 35	+448	− 7	.5007820	.5007825	.5007822	980.331	
	3	A4	D	Sept. 23.....	312.10	331.12	5.1	2.1	18.77	58	.5008023	.5007562	− 10	−158	+ 7	− 35	+448	− 7	.5007820	.5007842	.5007831	980.326	
	4	A5	D	Sept. 23.....	396.94	430.30	5.2	1.8	19.05	60	.5006306	.5005817	− 10	−170	+ 4	− 34	+437	− 7	.5006089	.5006071	.5006080	980.329	
	5	A5	D	Sept. 23-24..	399.28	431.40	5.3	2.0	18.97	62	.5006270	.5005801	− 11	−166	+ 2	− 34	+437	− 7	.5006054	.5006056	.5006055	980.339	
	6	A5	D	Sept. 24.....	400.50	432.17	5.3	1.9	18.57	62	.5006250	.5005792	− 11	−150	+ 2	− 34	+437	− 7	.5006050	.5006063	.5006056	980.339	
	7	A6	D	Sept. 24.....	422.12	458.39	5.1	1.8	19.22	63	.5005926	.5005459	− 9	−177	+ 1	− 24	+439	− 7	.5005710	.5005706	.5005708	980.336	
	8	A6	D	Sept. 24-25..	423.09	459.10	5.0	1.8	18.67	64	.5005916	.5005452	− 9	−154	0	− 24	+439	− 7	.5005722	.5005721	.5005722	980.330	
	9	A6	D	'Sept. 25.....	424.49	460.66	5.1	1.7	18.20	64	.5005896	.5005433	− 9	−134	0	− 24	+439	− 7	.5005722	.5005722	.5005722	980.330	
No. 128. Rockland, Me., C. L. Garner.	1	A4	D	Oct. 2.......	345.30	360.18	5.2	2.0	12.62	58	.5007251	.5006950	− 11	+100	+ 4	− 27	+256	− 13	.5007304	.5007286	.5007295	980.536	980.536 ±0.001
	2	A4	D	Oct. 2-3.....	345.02	358.66	5.3	1.8	12.85	62	.5007257	.5006980	− 10	+ 90	+ 1	− 27	+256	− 13	.5007298	.5007304	.5007301	980.534	
	3	A4	D	Oct. 3.......	344.99	358.50	5.1	1.8	12.80	63	.5007257	.5006983	− 9	+ 92	0	− 27	+256	− 13	.5007300	.5007309	.5007304	980.533	
	4	A5	D	Oct. 3.......	453.94	476.23	5.1	1.4	13.18	56	.5005514	.5005256	− 8	+ 76	+ 6	− 30	+235	− 13	.5005545	.5005552	.5005548	980.537	
	5	A5	D	Oct. 3-4.....	452.62	475.82	5.7	1.7	13.38	58	.5005530	.5005259	− 11	+ 68	+ 5	− 30	+235	− 13	.5005549	.5005543	.5005546	980.538	
	6	A5	D	Oct. 4.......	452.60	475.46	5.3	1.5	13.38	59	.5005530	.5005263	− 9	+ 68	+ 4	− 30	+235	− 13	.5005550	.5005548	.5005549	980.537	
	7	A6	D	Oct. 4.......	479.92	505.64	5.8	2.0	13.82	59	.5005214	.5004919	− 12	+ 49	+ 4	− 35	+212	− 13	.5005207	.5005219	.5005213	980.530	
	8	A6	D	Oct. 4-5.....	481.46	508.52	5.0	1.7	13.75	61	.5005198	.5004921	− 9	+ 52	+ 2	− 35	+242	− 13	.5005193	.5005193	.5005193	980.537	
	9	A6	D	Oct. 5.......	481.96	511.44	5.1	1.8	13.58	62	.5005192	.5004893	− 9	+ 59	+ 1	− 35	+242	− 13	.5005195	.5005173	.5005184	980.541	
No. 129. Lancaster, N. H., C. L. Garner.	1	A4	D	Oct. 8.......	329.54	348.78	5.4	1.8	18.14	63	.5007598	.5007178	− 10	−132	+ 1	− 26	+402	− 8	.5007423	.5007431	.5007427	980.484	980.486 ±0.001
	2	A4	D	Oct. 8-9.....	329.41	348.74	5.4	2.1	18.42	54	.5007601	.5007179	− 11	−143	+ 10	− 26	+402	− 8	.5007423	.5007429	.5007426	980.484	
	3	A4	D	Oct. 9.......	329.58	349.80	5.2	1.8	18.37	54	.5007597	.5007157	− 10	−141	+ 9	− 26	+402	− 8	.5007421	.5007409	.5007415	980.489	
	4	A5	D	Oct. 9.......	426.57	459.74	5.4	2.0	18.72	59	.5005867	.5005444	− 11	−156	+ 5	− 29	+396	− 8	.5005668	.5005670	.5005669	980.490	
	5	A5	D	Oct. 9-10....	426.17	458.90	5.2	1.9	18.82	61	.5005873	.5005454	− 11	−160	+ 3	− 29	+396	− 8	.5005668	.5005674	.5005671	980.489	
	6	A5	D	Oct. 10......	426.40	460.14	5.1	1.9	18.67	62	.5005870	.5005437	− 10	−154	+ 2	− 29	+396	− 8	.5005671	.5005663	.5005667	980.491	
	7	A6	D	Oct. 10......	452.80	489.75	5.2	1.8	18.82	63	.5005528	.5005109	− 10	−160	+ 1	− 21	+390	− 8	.5005330	.5005322	.5005326	980.485	
	8	A6	D	Oct. 10-11...	453.06	489.77	5.2	1.8	18.84	58	.5005524	.5005109	− 10	−161	+ 6	− 21	+390	− 8	.5005330	.5005326	.5005328	980.485	
	9	A6	D	Oct. 11......	454.12	491.30	5.2	1.8	18.55	58	.5005512	.5005094	− 10	−149	+ 5	− 21	+390	− 8	.5005329	.5005322	.5005326	980.485	
	10	A6	D	Oct. 11......	454.18	490.32	5.2	1.7	18.52	59	.5005511	.5005104	− 10	−147	+ 5	− 21	+390	− 8	.5005330	.5005334	.5005332	980.483	
	11	A6	D	Oct. 11-12...	454.15	490.88	5.4	1.8	18.49	59	.5005511	.5005098	− 10	−146	+ 4	− 21	+390	− 8	.5005330	.5005328	.5005329	980.484	
	12	A6	D	Oct. 12......	456.03	491.26	5.2	1.8	18.12	60	.5005487	.5005094	− 10	−131	+ 4	− [illegible]	+390	− 8	.5005321	.5005339	.5005330	980.484	

[a] Rate correction determined from observations on stars for time.

[b] Chronometer 3477 failed to break for the last day's observations.

[c] Rate correction determined from comparisons with Western Union time signals.

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1828	Chronometer No. 1838	Initial	Final			Chronometer No. 1828	Chronometer No. 1838	Arc	Temperature	Pressure	Rate Chronometer No. 1828	Rate Chronometer No. 1838	Flexure	Chronometer No. 1828	Chronometer No. 1838	Mean		
				1914.	*s.*	*s.*	*mm.*	*mm.*	° *C.*	*mm.*	*s.*	*s.*							*s.*	*s.*	*s.*	*Dynes*	*Dynes*
No. 130. Whitehall, N. Y., C. L. Garner.	1	A4	D	Oct. 15......	324.14	337.67	5.1	1.8	17.91	58	0.5007725	0.5007415	− 9	−122	+ 5	− 18	+286	− 8	0.5007573	0.5007567	0.5007570	980.428	980.429 ±0.001
	2	A4	D	Oct. 15–16...	325.20	338.25	5.4	1.9	17.54	60	.5007699	.5007402	− 11	−106	+ 4	− 18	+286	− 8	.5007560	.5007567	.5007564	980.431	
	3	A4	D	Oct. 16......	325.35	338.61	5.2	1.9	17.34	61	.5007696	.5007394	− 11	− 98	+ 3	− 18	+286	− 8	.5007561	.5007566	.5007567	980.430	
	4	A5	D	Oct. 16......	419.94	441.86	5.3	1.7	17.71	58	.5005961	.5005664	− 10	−114	+ 6	− 4	+299	− 8	.5005831	.5005837	.5005834	980.425	
	5	A5	D	Oct. 16–17...	420.22	443.45	5.1	1.9	17.54	60	.5005957	.5005644	− 10	−106	+ 4	− 4	+299	− 8	.5005833	.5005823	.5005828	980.428	
	6	A5	D	Oct. 17......	420.60	443.02	5.4	2.0	17.48	60	.5005951	.5005650	− 11	−104	+ 4	− 4	+299	− 8	.5005828	.5005830	.5005829	980.428	
	7	A6	D	Oct. 17......	443.84	468.21	5.2	1.9	18.14	61	.5005638	.5005346	− 11	−132	+ 3	− 21	+289	− 8	.5005469	.5005487	.5005478	980.426	
	8	A6	D	Oct. 17–18...	443.58	469.46	5.5	1.8	18.26	63	.5005642	.5005330	− 11	−136	+ 1	− 21	+289	− 8	.5005467	.5005465	.5005466	980.431	
	9	A6	D	Oct. 18......	441.24	471.66	5.3	1.8	17.98	64	.5005634	.5005306	− 10	−125	0	− 21	+289	− 8	.5005470	.5005452	.5005461	980.432	
N 31 Little Falls, N. Y., C. L. Garner.	1	A4	D	Nov. 5......	325.36	339.38	5.4	1.9	14.33	58	.5007696	.5007377	− 11	+ 28	+ 5	+ 7	+293	− 8	.5007717	.5007684	.5007700	980.378	980.374 ±0.001
	2	A4	D	Nov. 5–6....	326.42	337.58	5.4	1.9	14.00	60	.5007671	.5007416	− 11	+ 42	+ 3	+ 7	+293	− 8	.5007704	.5007735	.5007720	980.370	
	3	A4	D	Nov. 6......	326.90	338.30	5.4	2.0	13.67	61	.5007659	.5007401	− 11	+ 56	+ 2	+ 7	+293	− 8	.5007705	.5007733	.5007719	980.370	
	4	A5	D	Nov. 6......	426.66	443.46	5.5	1.9	13.40	58	.5005866	.5005644	− 11	+ 67	+ 5	+ 31	+261	− 8	.5005950	.5005958	.5005954	980.379	
	5	A5	D	Nov. 6–7....	426.37	442.86	5.2	1.9	13.33	60	.5005870	.5005652	− 10	+ 70	+ 3	+ 31	+261	− 8	.5005956	.5005968	.5005962	980.376	
	6	A5	D	Nov. 7......	426.06	444.51	5.2	1.7	13.23	62	.5005874	.5005631	− 10	+ 74	+ 1	+ 31	+261	− 8	.5005962	.5005949	.5005956	980.378	
	7	A6	D	Nov. 7......	452.80	470.99	5.2	1.9	13.25	57	.5005527	.5005314	− 10	+ 73	+ 5	+ 24	+225	− 8	.5005611	.5005599	.5005605	980.377	
	8	A6	D	Nov. 7–8....	452.08	467.75	5.0	1.9	13.23	59	.5005536	.5005350	− 10	+ 74	+ 4	+ 24	+225	− 8	.5005620	.5005635	.5005628	980.368	
	9	A6	D	Nov. 8......	451.88	468.40	5.1	1.8	13.10	59	.5005539	.5005343	− 9	+ 80	+ 3	+ 24	+225	− 8	.5005629	.5005634	.5005632	980.366	
No. 132. Watertown, N. Y., C. L. Garner.	1	A4	D	Nov. 11.....	336.83	338.22	5.2	1.7	13.70	63	.5007433	.5007402	− 10	+ 54	0	+ 22	+ 72	− 9	.5007490	.5007509	.5007500	980 455	980.461 ±0.001
	2	A4	D	Nov. 11–12..	336.64	339.46	5.4	2.1	13.70	60	.5007437	.5007376	− 11	+ 54	+ 3	+ 22	+ 72	− 9	.5007496	.5007485	.5007490	980.460	
	3	A4	D	Nov. 12.....	337.94	340.86	5.2	1.9	13.45	58	.5007409	.5007345	− 11	+ 65	+ 5	+ 22	+ 72	− 9	.5007481	.5007467	.5007474	980.466	
	4	A5	D	Nov. 12.....	440.02	444.99	5.5	1.9	13.97	63	.5005688	.5005624	− 12	+ 43	+ 1	+ 36	+104	− 9	.5005747	.5005751	.5005749	980.459	
	5	A5	D	Nov. 12–13..	442.55	448.33	5.1	2.0	13.35	59	.5005655	.5005582	− 10	+ 69	+ 4	+ 36	+104	− 9	.5005745	.5005740	.5005742	980.462	
	6	A5	D	Nov. 13.....	445.98	451.64	5.2	1.8	12.75	58	.5005612	.5005541	− 10	+ 94	+ 4	+ 36	+104	− 9	.5005727	.5005724	.5005726	980.468	
	7	A6	D	Nov. 13.....	470.16	473.90	5.2	1.9	13.33	60	.5005323	.5005281	− 11	+ 70	+ 3	+ 47	+ 84	− 9	.5005423	.5005418	.5005420	980 449	
	8	A6	D	Nov. 13–14..	479.07	481.42	5.1	1.9	12.13	57	.5005224	.5005199	− 10	+120	+ 5	+ 47	+ 84	− 9	.5005377	.5005389	.5005383	980.463	
	9	A6	D	Nov. 14.....	482.23	484.99	5.2	1.9	11.30	59	.5005190	.5005160	− 11	+155	+ 3	+ 47	+ 84	− 9	.5005375	.5005382	.5005378	980.465	
No. 133. Southport, N. Y., C. L. Garner.	1	A4	D	Nov. 22.....	338.88	338.35	5.1	1.8	2.91	55	.5007388	.5007400	− 9	+506	+ 6	+142	+139	− 12	.5008021	.5008030	.5008026	980.250	980.251 ±0.001
	2	A4	D	Nov. 22–23..	337.30	337.74	5.1	1.8	3.16	60	.5007423	.5007413	− 9	+496	+ 1	+142	+139	− 12	.5008041	.5008028	.5008034	980.246	
	3	A4	D	Nov. 23.....	338.97	338.72	5.0	1.6	2.94	65	.5007387	.5007392	− 9	+506	− 4	+142	+139	− 12	.5008010	.5008012	.5008011	980.255	
	4	A5	D	Nov. 23.....	446.85	445.49	5.3	1.9	2.91	56	.5005601	.5005618	− 10	+506	+ 5	+181	+165	− 12	.5006271	.5006272	.5006272	980.254	
	5	A5	D	Nov. 23–24..	446.18	445.12	4.9	1.9	2.71	63	.5005610	.5005622	− 9	+514	− 2	+181	+165	− 12	.5006282	.5006278	.5006280	980.250	
	6	A5	D	Nov. 24.....	450.10	448.28	5.6	1.9	2.16	59	.5005561	.5005583	− 11	+537	0	+181	+165	− 12	.5006256	.5006262	.5006259	980.259	
	7	A6	D	Nov. 24.....	479.04	476.75	4.8	1.7	2.46	56	.5005225	.5005250	− 9	+525	+ 5	+171	+153	− 12	.5005905	.5005912	.5005908	980.257	
	8	A6	D	Nov. 24–25..	474.05	472.56	5.2	1.1	2.86	62	.5005280	.5005296	− 7	+508	− 1	+171	+153	− 12	.5005939	.5005937	.5005938	980.245	
	9	A6	D	Nov. 25.....	470.70	470.41	4.9	2.6	3.24	68	.5005317	.5005320	− 12	+492	− 7	+171	+153	− 12	.5005949	.5005934	.5005942	980.244	
No. 134. Erie, Pa., C. L. Garner.	1	A4	D	Nov. 28.....	319.70	322.72	5.2	1.9	12.52	59	.5007832	.5007759	− 11	+104	+ 3	+ 17	+103	− 6	.5007939	.5007952	.5007946	980.281	980.278 ±0.001
	2	A4	D	Nov. 28–29..	319.31	322.48	5.2	1.8	12.36	62	.5007842	.5007764	− 10	+111	0	+ 17	+103	− 6	.5007954	.5007962	.5007958	980.277	
	3	A4	D	Nov. 29.....	319.12	323.03	5.0	1.7	12.29	64	.5007846	.5007751	− 9	+114	− 1	+ 17	+103	− 6	.5007961	.5007952	.5007956	980.277	
	4	A5	D	Nov. 29.....	411.07	416.51	5.4	1.9	12.42	56	.5006089	.5006010	− 11	+108	+ 6	+ 17	+103	− 6	.5006203	.5006210	.5006206	980.280	
	5	A5	D	Nov. 29–30..	410.98	416.55	5.0	1.8	12.52	57	.5006090	.5006009	− 9	+104	+ 5	+ 17	+103	− 6	.5006201	.5006206	.5006204	980.281	
	6	A5	D	Nov. 30.....	409.84	416.89	5.0	1.8	12.56	59	.5006107	.5006004	− 9	+102	+ 3	+ 17	+103	− 6	.5006214	.5006197	.5006206	980.280	
	7	A6	D	Nov. 30.....	433.90	441.54	5.4	1.9	12.76	58	.5005768	.5005669	− 11	+ 94	+ 4	+ 4	+108	− 6	.5005853	.5005858	.5005856	980.278	
	8	A6	D	Nov. 30–Dec. 1.	432.65	440.72	5.3	1.8	12.84	59	.5005785	.5005679	− 10	+ 91	+ 4	+ 4	+108	− 6	.5005868	.5005866	.5005867	980.274	
	9	A6	D	Dec. 1.......	432.49	440.64	5.1	1.7	12.96	60	.5005787	.5005680	− 9	+ 85	+ 3	+ 4	+108	− 6	.5005864	.5005861	.5005862	980.275	

				1915	1823	1841					1823	1841				1823	1841		1823	1841			
Washington,* D. C., Coast and Geodetic Survey Office, C. L. Garner.	1	A4	D	Jan. 7......	292.14	294.49	5.5	1.7	15.29	55	.5008572	.5008503	- 10	- 12	+ 8	-177	-122	- 9	.5008372	.5008358	.5008365	....	
	2	A4	D	Jan. 7-8.....	293.70	295.82	5.5	1.8	13.80	56	.5008527	.5008466	- 11	+ 50	+ 7	-177	-122	- 9	.5008387	.5008381	.5008384	....	
	3	A4	D	Jan. 8......	295.25	296.56	5.5	2.3	13.25	57	.5008482	.5008444	- 13	+ 73	+ 5	-177	-122	- 9	.5008361	.5008378	.5008370	....	
	4	A5	D	Jan. 8......	370.80	374.45	5.3	2.0	13.15	54	.5006751	.5006685	- 11	+ 78	+ 8	-166	-118	- 9	.5006651	.5006633	.5006642	....	
	5	A5	D	Jan. 8-9.....	372.74	375.18	5.3	1.8	12.83	56	.5006716	.5006672	- 10	+ 91	+ 7	-166	-118	- 9	.5006629	.5006633	.5006631	....	
	6	A5	D	Jan. 9......	374.79	376.32	4.8	2.2	12.47	57	.5006679	.5006652	- 11	+106	+ 5	-166	-118	- 9	.5006604	.5006625	.5006614	....	
	7	A6	D	Jan. 11......	397.17	400.49	5.5	1.9	11.35	56	.5006303	.5006250	- 12	+154	+ 6	-145	-107	- 9	.5006297	.5006282	.5006290	....	
	8	A6	D	Jan. 11-12...	398.19	400.92	5.3	1.8	11.16	58	.5006286	.5006244	- 10	+161	+ 4	-145	-107	- 9	.5006287	.5006283	.5006285	....	
	9	A6	D	Jan. 12......	398.10	399.76	5.8	2.0	11.14	60	.5006288	.5006261	- 12	+162	+ 2	-145	-107	- 9	.5006286	.5006297	.5006292	....	
	10	A6	D	Jan. 12......	395.18	398.97	5.4	2.0	11.68	57	.5006334	.5006274	- 11	+139	+ 5	-164	-115	- 9	.5006294	.5006283	.5006288	....	
	11	A6	D	Jan. 12-13...	395.00	397.72	5.4	1.9	11.97	59	.5006337	.5006294	- 11	+127	+ 3	-164	-115	- 9	.5006283	.5006289	.5006286	....	
	12	A6	D	Jan. 13......	394.28	396.60	5.4	2.0	12.33	61	.5006348	.5006312	- 11	+112	+ 1	-164	-115	- 9	.5006277	.5006290	.5006284	....	
					1828	1838					1828	1838				1828	1838		1828	1838			
No. 157. Homestead, Fla., C. L. Garner.	1	A4	D	Feb. 17......	215.40	218.65	5.4	1.8	21.95	53	.5011633	.5011460	- 10	-291	+ 11	- 74	+ 95	- 21	.5011248	.5011244	.5011246	978.989	978.985 ±0.001
	2	A4	D	Feb. 17-18...	215.35	218.36	5.1	1.7	21.63	54	.5011636	.5011475	- 9	-278	+ 10	- 74	+ 95	- 21	.5011264	.5011272	.5011268	978.981	
	3	A4	D	Feb. 18......	216.50	219.42	5.1	2.4	20.15	54	.5011574	.5011420	- 12	-216	+ 10	- 74	+ 95	- 21	.5011261	.5011276	.5011268	978.981	
	4	A5	D	Feb. 18......	256.56	261.22	5.3	1.9	19.34	57	.5009764	.5009589	- 11	-182	+ 7	- 66	+104	- 21	.5009491	.5009486	.5009488	978.993	
	5	A5	D	Feb. 18-19...	255.82	260.48	5.2	1.8	19.50	58	.5009791	.5009616	- 10	-189	+ 6	- 66	+104	- 21	.5009511	.5009506	.5009508	978.986	
	6	A5	D	Feb. 19......	256.30	260.66	5.2	2.1	19.03	58	.5009773	.5009610	- 11	-169	+ 6	- 66	+104	- 21	.5009512	.5009519	.5009516	978.983	
	7	A6	D	Feb. 19......	265.40	270.97	5.4	1.7	19.25	55	.5009438	.5009243	- 10	-178	+ 9	- 79	+111	- 21	.5009159	.5009154	.5009156	978.987	
	8	A6	D	Feb. 19-20...	264.63	269.91	5.3	2.0	19.65	57	.5009465	.5009280	- 11	-195	+ 7	- 79	+111	- 21	.5009166	.5009171	.5009168	978.983	
	9	A6	D	Feb. 20......	264.84	270.41	5.1	1.9	19.37	59	.5009457	.5009263	- 10	-183	+ 5	- 79	+111	- 21	.5009169	.5009165	.5009167	978.983	
No. 158. Sebring, Fla., C. L. Garner.	1	A4	D	Mar. 5.......	223.26	230.06	5.3	2.0	21.67	54	.5011223	.5010891	- 11	-279	+ 10	- 47	+256	- 19	.5010877	.5010848	.5010862	979.139	979.135 ±0.002
	2	A4	D	Mar. 5-6.....	223.15	229.27	5.2	1.9	21.57	56	.5011228	.5010928	- 11	-275	+ 8	- 47	+256	- 19	.5010884	.5010887	.5010886	979.130	
	3	A4	D	Mar. 6.......	224.38	230.00	5.2	1.9	20.15	56	.5011167	.5010893	- 11	-216	+ 8	- 47	+256	- 19	.5010882	.5010911	.5010896	979.126	
	4	A5	D	Mar. 6.......	268.80	276.07	5.1	1.6	19.05	58	.5009318	.5009072	- 8	-170	+ 6	- 51	+204	- 19	.5009076	.5009085	.5009080	979.153	
	5	A5	D	Mar. 6-7.....	267.36	275.42	5.4	1.9	19.07	60	.5009368	.5009093	- 11	-171	+ 4	- 51	+204	- 19	.5009120	.5009100	.5009110	979.141	
	6	A5	D	Mar. 7.......	268.06	274.68	5.6	2.2	18.10	60	.5009344	.5009119	- 13	-130	+ 4	- 51	+204	- 19	.5009135	.5009165	.5009150	979.126	
	7	A5	D	Mar. 7.......	269.19	276.84	5.2	1.9	17.16	58	.5009304	.5009047	- 11	- 90	+ 6	- 51	+204	- 19	.5009139	.5009137	.5009138	979.130	
	8	A5	D	Mar. 7-8.....	268.51	277.62	5.3	1.9	17.47	59	.5009328	.5009021	- 11	-103	+ 5	- 51	+204	- 19	.5009149	.5009097	.5009123	979.136	
	9	A5	D	Mar. 8.......	270.17	277.16	5.4	2.0	16.28	59	.5009271	.5009036	- 11	- 54	+ 4	- 51	+204	- 19	.5009140	.5009160	.5009150	979.126	
	10	A6	D	Mar. 8.......	286.04	291.03	5.5	1.9	14.24	58	.5008756	.5008605	- 11	+ 32	+ 5	- 18	+150	- 19	.5008745	.5008762	.5008754	979.145	
	11	A6	D	Mar. 8-9.....	285.01	291.28	5.1	1.7	13.88	60	.5008787	.5008598	- 9	+ 47	+ 3	- 18	+150	- 19	.5008791	.5008770	.5008781	979.134	
	12	A6	D	Mar. 9.......	285.60	391.01	5.5	1.9	13.37	61	.5008769	.5008606	- 11	+ 68	+ 2	- 18	+150	- 19	.5008791	.5008796	.5008794	979.129	
No. 159. Titusville, Fla., C. L. Garner.	1	A4	D	Feb. 24......	228.81	236.64	5.1	1.9	20.97	59	.5010950	.5010587	- 10	-250	+ 5	- 66	+186	- 30	.5010599	.5010488	.5010544	979.264	979.243 ±0.002
	2	A4	D	Feb. 24-25...	228.55	235.12	5.3	2.0	20.97	60	.5010962	.5010655	- 11	-250	+ 4	- 66	+186	- 30	.5010609	.5010554	.5010582	979.249	
	3	A4	D	Feb. 25......	230.11	235.82	5.1	2.1	18.90	60	.5010888	.5010624	- 10	-163	+ 4	- 66	+186	- 30	.5010623	.5010611	.5010617	979.235	
	4	A4	D	Feb. 25......	233.12	237.88	5.2	1.7	16.48	58	.5010747	.5010532	- 10	- 62	+ 5	- 66	+186	- 30	.5010584	.5010621	.5010602	979.241	
	5	A4	D	Feb. 25-26...	233.55	237.74	5.1	1.9	15.56	60	.5010728	.5010538	- 10	- 23	+ 3	- 66	+186	- 30	.5010602	.5010664	.5010633	979.229	
	6	A4	D	Feb. 26......	234.86	238.44	5.2	2.0	14.26	60	.5010668	.5010507	- 11	+ 31	+ 3	- 66	+186	- 30	.5010595	.5010686	.5010640	979.226	
	7	A5	D	Feb. 26......	281.96	287.50	5.1	1.7	14.08	58	.5008882	.5008711	- 9	+ 39	+ 5	- 66	+131	- 30	.5008821	.5008847	.5008834	979.249	
	8	A5	D	Feb. 26-27...	279.90	286.60	5.3	1.9	14.64	59	.5008948	.5008738	- 11	+ 15	+ 4	- 66	+131	- 30	.5008860	.5008847	.5008854	979.241	
	9	A5	D	Feb. 27......	280.52	287.32	5.2	2.1	14.24	60	.5008928	.5008716	- 11	+ 32	+ 3	- 66	+131	- 30	.5008856	.5008841	.5008848	979.244	
	10	A6	D	Feb. 27......	292.56	299.76	5.2	1.7	14.58	56	.5008560	.5008354	- 10	+ 18	+ 8	- 58	+150	- 30	.5008488	.5008490	.5008489	979.248	
	11	A6	D	Feb. 27-28...	291.10	298.12	5.4	1.8	15.18	56	.5008603	.5008400	- 10	- 7	+ 7	- 58	+150	- 30	.5008505	.5008510	.5008508	979.241	
	12	A6	D	Feb. 28......	290.84	298.40	5.5	1.9	15.36	57	.5008611	.5008392	- 11	- 15	+ 6	- 58	+150	- 30	.5008503	.5008492	.5008498	979.245	
No. 160. Leesburg, Fla., C. L. Garner.	1	A4	D	Mar. 12......	232.96	238.38	5.2	1.9	16.48	52	.5010755	.5010510	- 11	- 62	+ 11	- 64	+177	- 11	.5010618	.5010614	.5010616	979.235	979.235 ±0.001
	2	A4	D	Mar. 12-13...	232.75	237.88	5.3	1.9	16.56	53	.5010764	.5010532	- 11	- 65	+ 10	- 64	+177	- 11	.5010623	.5010632	.5010628	979.231	
	3	A4	D	Mar. 13......	232.42	237.86	5.3	2.1	16.64	54	.5010779	.5010533	- 11	- 69	+ 9	- 64	+177	- 11	.5010633	.5010628	.5010630	979.230	
	4	A5	D	Mar. 13......	279.16	284.56	5.4	1.8	16.46	59	.5008972	.5008801	- 10	- 61	+ 5	- 41	+142	- 11	.5008854	.5008866	.5008860	979.239	
	5	A5	D	Mar. 13-14...	278.80	284.26	5.2	1.9	16.38	61	.5008983	.5008810	- 11	- 58	+ 2	- 41	+142	- 11	.5008864	.5008874	.5008869	979.235	
	6	A5	D	Mar. 14......	278.51	284.98	5.2	2.0	16.31	63	.5008993	.5008788	- 11	- 55	0	- 41	+142	- 11	.5008875	.5008853	.5008864	979.237	
	7	A6	D	Mar. 14......	291.09	298.25	5.3	1.8	16.31	54	.5008603	.5008397	- 10	- 55	+ 9	- 34	+170	- 11	.5008502	.5008500	.5008501	979.243	
	8	A6	D	Mar. 14-15...	290.38	297.69	5.2	1.7	16.36	55	.5008625	.5008412	- 10	- 57	+ 8	- 34	+170	- 11	.5008521	.5008512	.5008516	979.238	
	9	A6	D	Mar. 15......	290.27	296.73	5.2	2.1	16.31	56	.5008628	.5008439	- 11	- 55	+ 7	- 34	+170	- 11	.5008524	.5008539	.5008532	979.231	
No. 161. Cedar Keys, Fla., C. L. Garner.	1	A4	D	Mar. 18......	237.42	241.28	5.3	2.1	13.31	56	.5010552	.5010383	- 11	+ 71	+ 6	- 32	+160	- 21	.5010565	.5010588	.5010576	979.251	979.257 ±0.001
	2	A4	D	Mar. 18-19...	236.76	241.27	5.3	1.9	13.94	58	.5010581	.5010383	- 11	+ 44	+ 5	- 32	+160	- 21	.5010566	.5010560	.5010563	979.256	
	3	A4	D	Mar. 19......	235.92	240.66	5.3	2.2	14.41	59	.5010619	.5010410	- 12	+ 25	+ 4	- 32	+160	- 21	.5010583	.5010566	.5010574	979.251	
	4	A5	D	Mar. 19......	281.56	289.38	5.2	1.7	15.28	59	.5008895	.5008654	- 10	- 12	+ 4	- 62	+183	- 21	.5008794	.5008798	.5008796	979.264	
	5	A5	D	Mar. 19-20...	280.26	288.20	5.3	1.9	15.84	61	.5008936	.5008690	- 11	- 35	+ 2	- 62	+183	- 21	.5008809	.5008808	.5008808	979.259	
	6	A5	D	Mar. 20......	279.26	287.18	5.2	2.0	16.46	62	.5008968	.5008721	- 11	- 61	+ 1	- 62	+183	- 21	.5008814	.5008812	.5008813	979.258	
	7	A6	D	Mar. 20......	290.48	301.24	5.3	1.6	16.78	56	.5008622	.5008313	- 9	- 75	+ 7	- 68	+227	- 21	.5008456	.5008442	.5008449	979.264	
	8	A6	D	Mar. 20-21...	289.56	299.99	5.4	1.9	17.04	57	.5008649	.5008347	- 11	- 86	+ 6	- 68	+227	- 21	.5008469	.5008462	.5008466	979.257	
	9	A6	D	Mar. 21......	290.26	299.71	5.3	1.8	16.58	58	.5008628	.5008356	- 10	- 66	+ 5	- 68	+227	- 21	.5008468	.5008491	.5008480	979.251	

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1828	Chronometer No. 1838	Initial	Final			Chronometer No. 1828	Chronometer No. 1838	Arc	Temperature	Pressure	Rate		Flexure	Chronometer No. 1828	Chronometer No. 1838	Mean		
																Chronometer No. 1828	Chronometer No. 1838						
				1915	*s.*	*s.*	*mm.*	*mm.*	° *C.*	*mm.*	*s.*	*s.*							*s.*	*s.*	*s.*	*Dynes*	*Dynes*
No. 163. Albany, Ga., C. L. Garner.	1	A4	D	Mar. 26......	248.04	255.38	5.4	2.0	13.74	58	0.5010099	0.5009809	−11	+53	+5	−54	+241	−11	0.5010081	0.5010086	0.5010084	979.443	979.449 ±0.001
	2	A4	D	Mar. 26–27...	247.58	255.07	5.4	2.0	14.03	60	.5010118	.5009820	−11	+41	+3	−54	+241	−11	.5010086	.5010083	.5010084	979.443	
	3	A4	D	Mar. 27......	247.36	254.93	5.4	2.1	14.18	61	.5010128	.5009826	−11	+34	+2	−54	+241	−11	.5010088	.5010081	.5010084	979.443	
	4	A5	D	Mar. 27......	299.60	311.10	5.3	2.0	14.48	57	.5008358	.5008049	−11	+22	+6	−53	+235	−11	.5008311	.5008290	.5008300	979.458	
	5	A5	D	Mar. 27–28...	299.25	310.02	5.2	1.7	14.58	58	.5008368	.5008077	−10	+18	+5	−53	+235	−11	.5008317	.5008314	.5008316	979.452	
	6	A5	D	Mar. 28......	298.94	308.54	5.2	2.4	14.54	60	.5008377	.5008116	−13	+19	+3	−53	+235	−11	.5008322	.5008349	.5008336	979.444	
	7	A6	D	Mar. 28......	312.60	323.02	5.3	2.7	14.54	65	.5008010	.5007752	−14	+19	−2	−46	+215	−11	.5007956	.5007959	.5007958	979.456	
	8	A6	D	Mar. 28–29...	312.08	322.40	5.2	1.6	14.58	63	.5008024	.5007766	−9	+18	0	−46	+215	−11	.5007976	.5007979	.5007978	979.448	
	9	A6	D	Mar. 29......	312.05	322.84	5.2	1.7	14.46	65	.5008024	.5007756	−10	+23	−2	−46	+215	−11	.5007978	.5007971	.5007974	979.450	
No. 162. Macon, Ga., C L. Garner.	1	A4	D	Apr. 1.......	248.37	255.84	5.6	2.0	19.65	56	.5010086	.5009790	−12	−195	+8	−73	+218	−8	.5009806	.5009801	.5009804	979.553	979.552 ±0.001
	2	A4	D	Apr. 1–2.....	248.48	255.69	5.3	1.9	19.57	58	.5010082	.5009796	−11	−191	+6	−73	+218	−8	.5009805	.5009810	.5009808	979.551	
	3	A4	D	Apr. 2.......	248.62	256.02	5.4	2.2	19.30	59	.5010076	.5009784	−12	−180	+5	−73	+218	−8	.5009808	.5009807	.5009808	979.551	
	4	A5	D	Apr. 2.......	300.34	310.01	5.3	1.8	19.40	60	.5008338	.5008078	−10	−184	+4	−79	+186	−8	.5008061	.5008066	.5008064	979.550	
	5	A5	D	Apr. 2–3.....	300.46	310.37	5.1	1.8	19.37	63	.5008334	.5008068	−9	−183	+1	−79	+186	−8	.5008056	.5008055	.5008056	979.553	
	6	A5	D	Apr. 3.......	300.66	310.78	5.4	2.1	19.20	64	.5008329	.5008057	−11	−176	0	−79	+186	−8	.5008055	.5008048	.5008052	979.555	
	7	A6	D	Apr. 3.......	313.08	322.95	5.3	1.7	19.33	60	.5007998	.5007753	−10	−181	+4	−86	+177	−8	.5007717	.5007735	.5007726	979.546	
	8	A6	D	Apr. 3–4.....	313.12	324.38	5.3	2.2	19.35	62	.5007997	.5007719	−12	−182	+2	−86	+177	−8	.5007711	.5007696	.5007703	979.555	
	9	A6	D	Apr. 4.......	313.70	324.55	5.2	1.4	19.20	64	.5007982	.5007715	−9	−176	0	−86	+177	−8	.5007703	.5007699	.5007701	979.556	
No. 165. Opelika, Ala., C. L. Garner.	1	A4	D	Apr. 8.......	247.23	251.99	5.3	1.7	15.16	59	.5010133	.5009940	−10	−7	+4	−51	+110	−13	.5010056	.5010024	.5010040	979.460	979.456 ±0.001
	2	A4	D	Apr. 8–9.....	246.88	250.38	5.3	1.8	15.34	62	.5010147	.5010005	−10	−14	+1	−51	+110	−13	.5010060	.5010079	.5010070	979.449	
	3	A4	D	Apr. 9.......	246.75	250.17	5.1	1.9	15.36	63	.5010152	.5010013	−10	−15	0	−51	+110	−13	.5010063	.5010085	.5010074	979.447	
	4	A5	D	Apr. 9.......	298.08	306.30	5.3	1.8	15.58	58	.5008401	.5008175	−10	−24	+5	−63	+139	−13	.5008296	.5008272	.5008284	979.465	
	5	A5	D	Apr. 9–10....	297.66	304.73	5.1	1.7	15.78	60	.5008413	.5008217	−9	−33	+3	−63	+139	−13	.5008298	.5008304	.5008301	979.458	
	6	A5	D	Apr. 10......	297.28	304.36	5.2	2.0	15.88	61	.5008424	.5008227	−11	−37	+2	−63	+139	−13	.5008302	.5008307	.5008304	979.457	
	7	A6	D	Apr. 10......	309.52	317.06	5.2	1.6	16.11	61	.5008090	.5007897	−9	−47	+2	−72	+113	−13	.5007951	.5007943	.5007947	979.460	
	8	A6	D	Apr. 10–11...	308.60	315.50	5.0	1.7	16.31	64	.5008114	.5007936	−9	−55	0	−72	+113	−13	.5007965	.5007972	.5007968	979.452	
	9	A6	D	Apr. 11......	308.36	315.64	5.0	1.8	16.36	65	.5008121	.5007933	−9	−57	−2	−72	+113.	−13	.5007968	.5007965	.5007966	979.453	
No. 174. Birmingham, Ala., C. L. Garner.	1	A4	D	Apr. 15......	245.60	252.30	5.4	1.9	20.96	58	.5010200	.5009928	−11	−250	+6	−86	+201	−12	.5009847	.5009862	.5009854	979.533	979.536 ±0.001
	2	A4	D	Apr. 15–16...	246.00	253.20	5.2	1.8	20.53	61	.5010183	.5009893	−10	−232	+3	−86	+201	−12	.5009846	.5009843	.5009844	979.537	
	3	A4	D	Apr. 16......	246.18	253.68	5.1	2.1	20.27	62	.5010176	.5009875	−10	−221	+2	−86	+201	−12	.5009849	.5009835	.5009842	979.538	
	4	A5	D	Apr. 16......	297.71	306.02	5.3	1.8	20.20	57	.5008412	.5008183	−10	−218	+7	−80	+166	−12	.5008099	.5008116	.5008108	979.533	
	5	A5	D	Apr. 16–17...	297.77	307.00	5.1	1.8	20.15	59	.5008410	.5008157	−9	−216	+5	−80	+166	−12	.5008098	.5008091	.5008094	979.539	
	6	A5	D	Apr. 17......	297.20	306.64	5.2	2.0	20.27	60	.5008426	.5008166	−11	−221	+4	−80	+166	−12	.5008106	.5008092	.5008099	979.537	
	7	A6	D	Apr. 17......	309.52	317.68	5.1	1.8	20.47	61	.5008090	.5007882	−9	−229	+3	−84	+136	−12	.5007759	.5007771	.5007765	979.531	
	8	A6	D	Apr. 17–18...	309.34	318.13	5.1	1.7	20.75	63	.5008095	.5007871	−9	−241	+1	−84	+136	−12	.5007750	.5007746	.5007748	979.538	
	9	A6	D	Apr. 18......	309.22	318.19	5.2	1.8	20.70	65	.5008098	.5007869	−10	−239	−1	−84	+136	−12	.5007752	.5007743	.5007748	979.538	
No. 166. Huntsville, Ala., C. L. Garner.	1	A4	D	Apr. 21......	251.13	254.20	5.6	2.0	21.25	58	.5009975	.5009854	−12	−262	+6	−87	+29	−13	.5009607	.5009602	.5009604	979.631	979.633 ±0.001
	2	A4	D	Apr. 21–22...	251.23	254.31	5.4	1.9	21.23	58	.5009971	.5009850	−11	−261	+6	−87	+29	−13	.5009605	.5009600	.5009602	979.631	
	3	A4	D	Apr. 22......	251.22	253.93	5.3	2.2	21.07	60	.5009971	.5009865	−12	−254	+4	−87	+29	−13	.5009609	.5009619	.5009614	979.627	
	4	A5	D	Apr. 22......	305.30	310.97	5.2	1.9	20.95	56	.5008202	.5008053	−11	−249	+8	−86	+53	−13	.5007851	.5007841	.5007846	979.635	
	5	A5	D	Apr. 22–23...	305.58	310.10	5.1	1.8	20.80	57	.5008195	.5008075	−9	−243	+7	−86	+53	−13	.5007851	.5007870	.5007860	979.630	
	6	A5	D	Apr. 23......	305.40	310.80	5.3	2.1	20.70	57	.5008199	.5008057	−11	−239	+7	−86	+53	−13	.5007857	.5007854	.5007856	979.632	
	7	A6	D	Apr. 23......	318.60	325.94	5.2	1.8	20.77	58	.5007859	.5007682	−10	−242	+6	−109	+96	−13	.5007491	.5007519	.5007505	979.633	
	8	A6	D	Apr. 23–24...	318.40	327.58	5.2	1.8	20.80	60	.5007864	.5007643	−10	−243	+4	−109	+96	−13	.5007493	.5007477	.5007485	979.641	
	9	A6	D	Apr. 24......	318.48	327.62	5.1	2.0	20.67	62	.5007862	.5007643	−10	−238	+2	−109	+96	−13	.5007494	.5007480	.5007487	979.640	

No. 173. Greenville, Ala., C. L. Garner.	1	A4	D	Apr. 28......	238.50	245.48	5.3	1.9	22.13	57	.5010504	.5010205	- 11	-299	+ 7	-102	+202	- 10	.5010089	.5010094	.5010092	979.440	979.439 ±0.000
	2	A4	D	Apr. 28-29...	238.05	245.31	5.3	1.8	22.20	61	.5010524	.5010212	- 10	-302	+ 4	-102	+202	- 10	.5010104	.5010096	.5010100	979.437	
	3	A4	D	Apr. 29......	238.08	245.20	5.1	2.1	22.03	62	.5010523	.5010217	- 10	-295	+ 2	-102	+202	- 10	.5010108	.5010106	.5010107	979.434	
	4	A5	D	Apr. 29......	285.72	296.40	5.3	1.7	22.05	62	.5008765	.5008449	- 10	-295	+ 2	-109	+212	- 10	.5008343	.5008348	.5008346	979.440	
	5	A5	D	Apr. 29-30...	285.58	296.34	5.1	1.9	22.10	57	.5008770	.5008451	- 10	-298	+ 7	-109	+212	- 10	.5008350	.5008352	.5008351	979.438	
	6	A5	D	Apr. 30......	285.58	296.56	5.3	2.4	21.93	57	.5008770	.5008444	- 13	-290	+ 7	-109	+212	- 10	.5008355	.5008350	.5008352	979.438	
	7	A5	D	Apr. 30......	285.84	296.30	5.4	1.9	22.03	60	.5008762	.5008452	- 11	-295	+ 4	-109	+212	- 10	.5008341	.5008352	.5008346	979.440	
	8	A5	D	Apr. 30, May 1.	285.52	296.29	5.2	1.7	22.17	64	.5008771	.5008452	- 10	-300	+ 1	-109	+212	- 10	.5008343	.5008345	.5008344	979.441	
	9	A5	D	May 1......	285.28	296.49	5.1	2.1	22.17	62	.5008779	.5008146	- 10	-300	+ 3	-109	+212	- 10	.5008353	.5008341	.5008347	979.440	
	10	A6	D	May 1......	297.38	309.92	5.1	1.7	22.36	59	.5008421	.5008080	- 9	-308	+ 5	-109	+236	- 10	.5007990	.5007994	.5007992	979.443	
	11	A6	D	May 1-2.....	296.48	309.05	5.3	1.8	22.44	64	.5008147	.5008102	- 10	-312	+ 1	-109	+236	- 10	.5008007	.5008007	.5008007	979.437	
	12	A6	D	May 2......	296.43	309.22	5.3	1.8	22.42	63	.5008448	.5008098	- 10	-311	+ 2	-109	+236	- 10	.5008010	.5008005	.5008008	979.436	
No. 164. Pensacola, Fla., C. L. Garner.	1	A4	D	May 5......	232.89	241.84	5.4	2.0	23.84	59	.5010758	.5010359	- 11	-370	+ 5	- 77	+317	- 8	.5010297	.5010292	.5010294	979.361	979.360 ±0.001
	2	A4	D	May 5-6.....	232.78	241.68	5.1	1.6	23.79	62	.5010763	.5010366	- 8	-368	+ 3	- 77	+317	- 8	.5010305	.5010302	.5010304	979.357	
	3	A4	D	May 6......	232.68	241.34	5.2	2.2	23.72	67	.5010768	.5010380	- 12	-365	- 1	- 77	+317	- 8	.5010305	.5010311	.5010308	979.356	
	4	A5	D	May 6......	278.44	291.28	5.1	1.7	23.82	57	.5008995	.5008598	- 9	-370	+ 7	- 70	+320	- 8	.5008545	.5008538	.5008542	979.363	
	5	A5	D	May 6-7.....	278.36	290.77	5.2	1.8	23.92	56	.5008997	.5008613	- 10	-374	+ 8	- 70	+320	- 8	.5008543	.5008549	.5008546	979.362	
	6	A5	D	May 7......	277.62	290.13	5.2	2.8	24.02	63	.5009021	.5008632	- 14	-378	+ 2	- 70	+320	- 8	.5008553	.5008554	.5008554	979.359	
	7	A6	D	May 7......	290.42	303.74	4.9	1.8	24.09	56	.5008623	.5008244	- 9	-381	+ 8	- 70	+348	- 8	.5008163	.5008202	.5008182	979.368	
	8	A6	D	May 7-8.....	288.28	303.46	5.2	1.9	24.19	63	.5008688	.5008252	- 11	-385	+ 2	- 70	+348	- 8	.5008216	.5008198	.5008207	979.358	
	9	A6	D	May 8......	287.82	303.29	5.3	2.2	24.16	58	.5008701	.5008256	- 12	-384	+ 7	- 70	+348	- 8	.5008234	.5008207	.5008220	979.353	
No. 167. Arkansas City Ark., C. L. Garner.	1	A4	D	May 21......	246.44	255.11	5.4	2.2	25.38	56	.5010165	.5009819	- 12	-435	+ 9	- 50	+311	- 14	.5009663	.5009678	.5009670	979.605	979.600 ±0.001
	2	A4	D	May 21-22...	246.56	255.58	5.3	1.9	25.09	59	.5010161	.5009801	- 11	-423	+ 6	- 50	+311	- 14	.5009669	.5009670	.5009670	979.605	
	3	A4	D	May 22......	246.59	256.18	5.2	2.1	24.69	60	.5010159	.5009778	- 11	-406	+ 5	- 50	+311	- 14	.5009683	.5009663	.5009673	979.604	
	4	A5	D	May 22......	298.24	312.62	5.2	1.9	24.72	62	.5008397	.5008010	- 11	-407	+ 3	- 28	+375	- 14	.5007940	.5007956	.5007948	979.596	
	5	A5	D	May 22-23...	298.32	313.74	5.4	2.0	24.66	55	.5008394	.5007981	- 11	-405	+ 9	- 28	+375	- 14	.5007945	.5007935	.5007940	979.599	
	6	A5	D	May 23......	297.91	313.22	5.3	2.0	24.52	56	.5008406	.5007994	- 11	-399	+ 8	- 28	+375	- 14	.5007962	.5007953	.5007958	979.592	
No. 168. Memphis, Tenn., C. L. Garner.	1	A4	D	May 27......	256.88	269.16	5.4	1.8	23.52	65	.5009751	.5009306	- 10	-357	+ 0	- 59	+385	- 9	.5009316	.5009315	.5009316	979.744	979.740 ±0.001
	2	A4	D	May 27-28...	257.54	269.53	5.4	2.0	23.04	58	.5009726	.5009293	- 11	-337	+ 7	- 59	+385	- 9	.5009317	.5009328	.5009322	979.741	
	3	A4	D	May 28......	257.50	270.24	5.4	2.2	22.72	59	.5009728	.5009268	- 12	-323	+ 6	- 59	+385	- 9	.5009331	.5009315	.5009323	979.741	
	4	A5	D	May 28......	314.70	330.76	5.2	2.0	22.59	60	.5007957	.5007570	- 11	-318	+ 4	- 46	+356	- 9	.5007577	.5007592	.5007584	979.738	
	5	A5	D	May 28-29...	314.78	330.94	5.2	1.8	22.54	63	.5007955	.5007566	- 10	-316	+ 2	- 46	+356	- 9	.5007576	.5007589	.5007582	979.739	
	6	A5	D	May 29......	314.83	332.80	5.3	2.3	22.32	64	.5007953	.5007523	- 12	-307	+ 1	- 46	+356	- 9	.5007580	.5007552	.5007566	979.745	
	7	A6	D	May 29......	330.26	350.08	5.2	1.7	22.20	53	.5007581	.5007151	- 10	-302	+ 11	- 49	+381	- 9	.5007222	.5007222	.5007222	979.744	
	8	A6	D	May 29-30...	329.60	349.20	5.1	2.1	22.09	56	.5007596	.5007170	- 10	-297	+ 8	- 49	+381	- 9	.5007239	.5007243	.5007241	979.736	
	9	A6	D	May 30......	329.58	349.66	5.1	2.1	21.87	57	.5007597	.5007160	- 10	-288	+ 7	- 49	+381	- 9	.5007248	.5007241	.5007244	979.736	
No. 169. Mammoth Spring, Ark., C. L. Garner.	1	A4	D	June 2......	269.28	279.76	5.4	2.0	17.94	55	.5009302	.5008952	- 11	-123	+ 8	- 74	+262	- 13	.5009089	.5009075	.5009082	979.835	979.828 ±0.001
	2	A4	D	June 2-3.....	268.81	279.27	5.2	2.0	17.87	58	.5009318	.5008968	- 11	-120	+ 5	- 74	+262	- 13	.5009105	.5009091	.5009098	979.829	
	3	A4	D	June 3......	268.22	277.45	5.0	2.0	17.87	60	.5009338	.5009027	- 10	-120	+ 4	- 74	+262	- 13	.5009125	.5009150	.5009138	979.813	
	4	A5	D	June 3......	331.18	344.42	5.4	1.9	17.99	56	.5007560	.5007269	- 11	-125	+ 7	- 77	+227	- 13	.5007341	.5007354	.5007348	979.830	
	5	A5	D	June 3-4.....	330.56	344.66	5.2	1.9	18.03	59	.5007575	.5007264	- 11	-127	+ 5	- 77	+227	- 13	.5007352	.5007345	.5007348	979.830	
	6	A5	D	June 4......	330.04	344.32	5.2	2.0	18.10	61	.5007586	.5007272	- 11	-130	+ 8	- 77	+227	- 13	.5007358	.5007348	.5007353	979.829	
	7	A6	D	June 4......	347.02	363.78	5.1	1.9	18.35	55	.5007215	.5006881	- 10	-140	+ 8	- 58	+274	- 13	.5007002	.5007000	.5007001	979.830	
	8	A6	D	June 4-5.....	346.34	361.32	5.3	1.9	18.47	59	.5007229	.5006929	- 11	-145	+ 5	- 58	+274	- 13	.5007007	.5007039	.5007023	979.822	
	9	A6	D	June 5......	345.60	364.00	5.1	1.9	18.60	61	.5007244	.5006878	- 10	-151	+ 3	- 58	+274	- 13	.5007015	.5006981	.5006998	979.832	
No. 170. Hopkinsville, Ky., C. L. Garner.	1	A4	D	June 8......	266.79	278.40	5.3	1.9	21.75	59	.5009388	.5008996	- 11	-283	+ 5	- 63	+337	- 10	.5009026	.5009034	.5009030	979.856	979.855 ±0.000
	2	A4	D	June 8-9.....	266.75	278.56	5.2	1.9	21.58	61	.5009390	.5008991	- 11	-275	+ 3	- 63	+337	- 10	.5009034	.5009035	.5009034	979.854	
	3	A4	D	June 9......	266.54	278.70	5.2	2.0	21.52	63	.5009397	.5008986	- 11	-273	+ 1	- 63	+337	- 10	.5009041	.5009030	.5009036	979.853	
	4	A5	D	June 9......	329.56	347.31	5.2	1.8	21.50	57	.5007597	.5007209	- 10	-272	+ 7	- 35	+366	- 10	.5007277	.5007290	.5007284	979.856	
	5	A5	D	June 9-10....	329.28	347.49	5.3	2.0	21.52	61	.5007604	.5007205	- 11	-273	+ 3	- 35	+366	- 10	.5007278	.5007280	.5007279	979.857	
	6	A5	D	June 10......	328.91	348.03	5.3	2.2	21.42	62	.5007613	.5007193	- 12	-269	+ 2	- 35	+366	- 10	.5007289	.5007270	.5007280	979.857	
	7	A6	D	June 10......	343.92	364.81	5.1	1.9	21.40	60	.5007280	.5006862	- 10	-268	+ 4	- 61	+370	- 10	.5006935	.5006948	.5006942	979.854	
	8	A6	D	June 10-11...	343.62	364.93	5.1	1.8	21.32	63	.5007286	.5006860	- 9	-265	+ 1	- 61	+370	- 10	.5006942	.5006947	.5006944	979.853	
	9	A6	D	June 11......	343.16	365.78	5.1	2.0	21.32	61	.5007296	.5006844	- 10	-265	+ 3	- 61	+370	- 10	.5006953	.5006932	.5006942	979.853	
No. 171. Danville, Ky., C. L. Garner.	1	A4	D	June 15......	265.46	281.48	5.3	2.0	22.01	57	.5009436	.5008898	- 11	-294	+ 7	-101	+436	- 13	.5009024	.5009023	.5009024	979.858	979.855 ±0.001
	2	A4	D	June 15-16...	265.53	281.45	5.2	2.0	21.75	59	.5009433	.5008898	- 11	-283	+ 5	-101	+436	- 13	.5009030	.5009032	.5009031	979.855	
	3	A4	D	June 16......	265.48	281.56	5.4	2.2	21.50	60	.5009435	.5008895	- 12	-272	+ 4	-101	+436	- 13	.5009041	.5009038	.5009040	979.851	
	4	A5	D	June 16......	325.50	351.26	5.5	1.8	21.33	62	.5007692	.5007128	- 11	-265	+ 2	-128	+438	- 13	.5007277	.5007279	.5007278	979.858	
	5	A5	D	June 16-17...	325.54	351.58	5.2	2.0	21.27	57	.5007691	.5007121	- 11	-263	+ 7	-128	+438	- 13	.5007283	.5007279	.5007281	979.857	
	6	A5	D	June 17......	325.28	351.18	5.1	2.0	21.17	59	.5007697	.5007129	- 10	-259	+ 5	-128	+438	- 13	.5007292	.5007290	.5007291	979.853	
	7	A6	D	June 17......	342.80	369.32	5.1	1.7	21.13	61	.5007304	.5006779	- 9	-257	+ 3	- 97	+434	- 13	.5006931	.5006937	.5006934	979.856	
	8	A6	D	June 17-18...	342.54	369.33	5.3	1.5	21.05	57	.5007309	.5006778	- 9	-254	+ 7	- 97	+434	- 13	.5006943	.5006943	.5006943	979.853	
	9	A6	D	June 18......	341.88	369.06	5.0	2.5	21.03	60	.5007323	.5006783	- 12	-253	+ 4	- 97	+434	- 13	.5006952	.5006943	.5006948	979.851	

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1828	Chronometer No. 1838	Initial	Final			Chronometer No. 1828	Chronometer No. 1838	Arc	Temperature	Pressure	Rate: Chronometer No. 1828	Rate: Chronometer No. 1838	Flexure	Chronometer No. 1828	Chronometer No. 1838	Mean		
				1915	*s.*	*s.*	*mm.*	*mm.*	*° C.*	*mm.*	*s.*	*s.*							*s.*	*s.*	*s.*	*Dynes*	*Dynes*
No. 176. Prestonsburg, Ky., C. L. Garner.	1	A4	D	June 21	265.52	285.33	5.4	2.1	23.15	60	0.5009433	0.5008777	−11	−342	+5	−115	+548	−11	0.5008959	0.5008966	0.5008962	979.882	979.881 ±0.000
	2	A4	D	June 21–22	265.36	285.16	5.4	1.9	23.09	64	.5009439	.5008782	−11	−339	+1	−115	+548	−11	.5008964	.5008970	.5008967	979.880	
	3	A4	D	June 22	265.17	285.60	5.4	2.0	22.96	65	.5009446	.5008769	−11	−334	0	−115	+548	−11	.5008975	.5008961	.5008968	979.880	
	4	A5	D	June 22	326.00	355.82	5.3	1.9	22.95	60	.5007680	.5007036	−11	−333	+5	−122	+524	−11	.5007208	.5007210	.5007209	979.885	
	5	A5	D	June 22–23	325.64	355.66	5.2	1.8	22.86	64	.5007689	.5007039	−10	−329	+1	−122	+524	−11	.5007218	.5007214	.5007216	979.882	
	6	A5	D	June 23	325.70	355.74	5.4	2.0	22.74	62	.5007688	.5007037	−11	−324	+3	−122	+524	−11	.5007223	.5007218	.5007220	979.881	
	7	A6	D	June 23	341.78	374.66	5.4	2.0	22.60	55	.5007325	.5006682	−11	−318	+9	−126	+524	−11	.5006868	.5006875	.5006872	979.881	
	8	A6	D	June 23–24	341.44	374.64	5.2	2.0	22.52	59	.5007333	.5006682	−11	−315	+5	−126	+524	−11	.5006875	.5006874	.5006874	979.880	
	9	A6	D	June 24	341.76	375.40	5.1	1.8	22.17	62	.5007326	.5006669	−9	−300	+2	−126	+524	−11	.5006882	.5006875	.5006878	979.878	
No. 172. Clifton Forge, Va., C. L. Garner.	1	A4	D	June 27	266.30	281.31	5.4	1.9	20.33	54	.5009406	.5008903	−11	−223	+9	−112	+389	−13	.5009056	.5009054	.5009055	979.846	979.844 ±0.001
	2	A4	D	June 27–28	266.71	281.59	5.2	1.2	20.00	59	.5009392	.5008894	−8	−209	+5	−112	+389	−13	.5009055	.5009058	.5009056	979.845	
	3	A4	D	June 28	266.18	281.38	5.3	3.3	19.90	61	.5009410	.5008901	−16	−205	+3	−112	+389	−13	.5009067	.5009059	.5009063	979.842	
	4	A5	D	June 28	328.26	349.18	5.2	1.9	19.97	52	.5007628	.5007170	−11	−208	+11	−103	+355	−13	.5007304	.5007304	.5007304	979.848	
	5	A5	D	June 28–29	327.96	348.94	5.2	1.9	19.95	58	.5007635	.5007175	−11	−207	+6	−103	+355	−13	.5007307	.5007305	.5007306	979.847	
	6	A5	D	June 29	327.54	348.61	5.2	2.1	19.95	62	.5007644	.5007182	−11	−207	+2	−103	+355	−13	.5007312	.5007308	.5007310	979.845	
	7	A6	D	June 29	342.76	365.11	5.2	2.0	20.10	55	.5007305	.5006857	−11	−214	+9	−106	+354	−18	.5006970	.5006982	.5006976	979.840	
	8	A6	D	June 29–30	342.40	365.54	5.3	1.8	20.13	60	.5007312	.5006848	−10	−215	+4	−106	+354	−13	.5006972	.5006968	.5006970	979.842	
	9	A6	D	June 30	342.36	365.86	5.2	1.9	20.05	57	.5007313	.5006843	−11	−212	+7	−106	+354	−13	.5006978	.5006968	.5006973	979.841	
No. 175. Lexington, Va., C. L. Garner.	1	A4	D	July 2	265.86	279.68	5.1	2.1	21.51	53	.5009421	.5008955	−10	−273	+11	−129	+352	−12	.5009008	.5009023	.5009016	979.861	979.859 ±0.001
	2	A4	D	July 2–3	265.83	280.09	5.4	1.9	21.15	57	.5009422	.5008941	−11	−258	+7	−129	+352	−12	.5009019	.5009019	.5009019	979.860	
	3	A4	D	July 3	265.68	280.54	5.2	2.1	20.87	60	.5009428	.5008927	−11	−246	+4	−129	+352	−12	.5009034	.5009014	.5009024	979.858	
	4	A5	D	July 3	327.24	350.20	5.2	1.9	20.83	56	.5007651	.5007149	−11	−244	+8	−130	+370	−12	.5007262	.5007260	.5007261	979.865	
	5	A5	D	July 3–4	327.42	350.18	5.1	1.8	20.70	59	.5007647	.5007149	−9	−239	+5	−130	+370	−12	.5007262	.5007264	.5007263	979.864	
	6	A5	D	July 4	326.66	349.59	5.1	1.9	20.63	62	.5007665	.5007161	−10	−236	+2	−130	+370	−12	.5007279	.5007275	.5007277	979.858	
	7	A6	D	July 4	342.49	367.99	5.0	1.8	20.63	56	.5007310	.5006803	−9	−236	+8	−126	+388	−12	.5006935	.5006942	.5006938	979.855	
	8	A6	D	July 4–5	342.22	368.28	5.1	1.5	20.57	62	.5007316	.5006797	−8	−233	+2	−126	+388	−12	.5006939	.5006931	.5006936	979.856	
	9	A6	D	July 5	342.12	368.98	5.1	2.2	20.50	58	.5007318	.5006784	−11	−230	+6	−126	+388	−12	.5006945	.5006925	.5006935	979.856	
	10	A6	D	July 5	342.89	369.38	5.0	1.8	20.47	62	.5007301	.5006777	−9	−229	+2	−126	+388	−12	.5006927	.5006917	.5006922	979.861	
	11	A6	D	July 5–6	343.44	368.36	5.3	1.9	20.43	56	.5007290	.5006796	−11	−228	+8	−126	+388	−12	.5006921	.5006941	.5006931	979.858	
	12	A6	D	July 6	343.14	369.06	5.1	1.8	20.37	59	.5007296	.5006783	−9	−225	+5	−126	+388	−12	.5006929	.5006930	.5006930	979.858	
Washington, D. C., Coast and Geodetic Survey Office, C. L. Garner.	1	A4	D	July 12	283.08	304.73	5.3	2.0	23.40	59	.5008847	.5008217	−11	−352	+6	−100	+510	−11	.5008379	.5008359	.5008369	....	
	2	A4	D	July 12–13	283.18	303.84	5.2	1.8	23.36	62	.5008844	.5008242	−10	−350	+3	−100	+510	−11	.5008376	.5008384	.5008380	....	
	3	A4	D	July 13	283.04	303.83	5.4	2.2	23.12	64	.5008848	.5008242	−12	−340	+1	−100	+510	−11	.5008386	.5008390	.5008388	....	
	4	A5	D	July 13	354.91	386.42	5.2	1.9	23.12	60	.5007054	.5006478	−11	−340	+5	−72	+507	−11	.5006625	.5006628	.5006626	....	
	5	A5	D	July 13–14	354.54	385.85	5.2	1.9	23.19	64	.5007061	.5006488	−11	−343	+1	−72	+507	−11	.5006625	.5006631	.5006628	....	
	6	A5	D	July 14	354.00	386.03	5.3	2.1	23.24	60	.5007072	.5006484	−11	−345	+5	−72	+507	−11	.5006638	.5006629	.5006634	....	
	7	A6	D	July 14	373.49	408.23	5.3	1.7	23.29	57	.5006702	.5006131	−10	−347	+7	−71	+507	−11	.5006270	.5006277	.5006274	....	
	8	A6	D	July 14–15	373.13	407.96	5.3	1.8	23.26	61	.5006709	.5006135	−10	−346	+4	−71	+507	−11	.5006275	.5006279	.5006277	....	
	9	A6	D	July 15	372.44	408.22	5.2	1.8	23.22	63	.5006721	.5006132	−10	−344	+2	−71	+507	−11	.5006287	.5006276	.5006282	....	
No. 186. Aberdeen, S. Dak., C. L. Garner.	1	A4	D	Aug. 5	334.82	362.80	5.3	1.8	17.31	56	.5007478	.5006900	−10	−97	+7	−121	+471	−9	.5007248	.5007262	.5007255	980.557	980.550 ±0.001
	2	A4	D	Aug. 5–6	333.60	362.50	5.2	1.8	17.28	61	.5007505	.5006906	−10	−96	+3	−121	+471	−9	.5007272	.5007265	.5007268	980.552	
	3	A4	D	Aug. 6	333.20	362.34	5.0	1.9	17.35	65	.5007514	.5006909	−10	−98	−1	−121	+471	−9	.5007275	.5007262	.5007268	980.552	
	4	A5	D	Aug. 6	433.61	484.82	5.2	2.0	17.68	57	.5005772	.5005162	−11	−112	+7	−128	+478	−9	.5005519	.5005515	.5005517	980.551	
	5	A5	D	Aug. 6–7	432.32	482.56	5.3	1.9	17.87	61	.5005790	.5005186	−11	−120	+3	−128	+478	−9	.5005525	.5005527	.5005526	980.548	
	6	A5	D	Aug. 7	431.44	481.72	5.4	2.1	18.00	64	.5005801	.5005195	−11	−126	0	−128	+478	−9	.5005527	.5005527	.5005527	980.548	
	7	A6	D	Aug. 7	458.48	515.99	5.2	1.9	18.17	54	.5005458	.5004850	−11	−133	+9	−124	+482	−9	.5005190	.5005188	.5005189	980.547	
	8	A6	D	Aug. 7–8	458.16	515.05	5.3	1.9	18.20	59	.5005462	.5004858	−11	−134	+5	−124	+482	−9	.5005189	.5005191	.5005190	980.547	
	9	A6	D	Aug. 8	457.96	515.01	5.3	1.7	18.20	63	.5005464	.5004859	−10	−134	+1	−124	+482	−9	.5005188	.5005189	.5005188	980.548	

No. 187. Faith, S. Dak., C. L. Garner.	1	A4	D	Aug. 12.....	314.26	335.62	5.4	2.1	19.33	58	.5007968	.5007460	−11	−181	+6	−126	+383	−10	.5007646	.5007647	.5007646	980.404	980.404 ±0.000
	2	A4	D	Aug. 12–13..	314.14	335.62	5.2	1.8	19.37	63	.5007971	.5007460	−10	−183	+1	−126	+383	−10	.5007643	.5007641	.5007642	980.405	
	3	A4	D	Aug. 13.....	313.84	335.41	5.3	1.8	19.25	65	.5007979	.5007465	−10	−178	−1	−126	+383	−10	.5007654	.5007649	.5007652	980.402	
	4	A5	D	Aug. 13.....	404.13	442.78	5.4	2.1	19.12	49	.5006194	.5005653	−11	−173	+15	−129	+419	−10	.5005886	.5005893	.5005890	980.405	
	5	A5	D	Aug. 13–14..	403.12	442.22	5.4	1.8	19.23	53	.5006210	.5005659	−10	−177	+10	−129	+419	−10	.5005894	.5005891	.5005892	980.404	
	6	A5	D	Aug. 14.....	402.38	442.32	5.3	2.4	19.17	56	.5006220	.5005658	−13	−175	+8	−129	+419	−10	.5005901	.5005887	.5005894	980.404	
	7	A6	D	Aug. 14.....	428.39	471.51	5.3	2.0	19.05	55	.5005842	.5005308	−11	−170	+9	−110	+433	−10	.5005550	.5005559	.5005554	980.404	
	8	A6	D	Aug. 14–15..	426.98	470.48	5.2	1.8	19.13	62	.5005862	.5005319	−10	−173	+2	−110	+433	−10	.5005561	.5005561	.5005561	980.402	
	9	A6	D	Aug. 15.....	426.98	471.33	5.2	1.6	19.13	62	.5005862	.5005310	−9	−173	+2	−110	+433	−10	.5005562	.5005553	.5005558	980.403	
No. 189. Towner, N. Dak., C. L. Garner.	1	A4	D	Aug. 20.....	359.46	390.18	5.3	2.9	20.95	56	.5006965	.5006415	−15	−249	+8	−93	+455	−10	.5006606	.5006604	.5006605	980.812	980.814 ±0.000
	2	A4	D	Aug. 20–21...	359.60	390.22	5.2	2.2	21.00	61	.5006962	.5006415	−12	−251	+3	−93	+455	−10	.5006599	.5006600	.5006600	980.814	
	3	A4	D	Aug. 21......	359.46	390.46	5.4	2.2	20.95	64	.5006965	.5006411	−12	−249	0	−93	+455	−10	.5006601	.5006595	.5006598	980.815	
	4	A5	D	Aug. 21......	480.98	535.85	5.6	2.2	21.05	57	.5005203	.5004670	−13	−253	+7	−87	+442	−10	.5004847	.5004843	.5004845	980.815	
	5	A5	D	Aug. 21–22...	480.63	536.34	5.4	1.8	21.00	63	.5005207	.5004665	−10	−251	+1	−87	+442	−10	.5004850	.5004837	.5004844	980.815	
	6	A5	D	Aug. 22......	480.84	536.37	5.5	2.0	20.87	60	.5005205	.5004665	−12	−246	+4	−87	+442	−10	.5004854	.5004843	.5004848	980.814	
	7	A5	D	Aug. 22......	482.16	535.30	5.3	1.8	20.73	64	.5005190	.5004675	−10	−240	0	−87	+442	−10	.5004843	.5004857	.5004850	980.813	
	8	A5	D	Aug. 22–23...	483.18	537.66	5.3	2.1	20.63	58	.5005179	.5004654	−11	−236	+6	−87	+442	−10	.5004841	.5004845	.5004843	980.816	
	9	A5	D	Aug. 23......	483.29	537.54	5.4	2.2	20.33	61	.5005178	.5004656	−12	−223	+3	−87	+442	−10	.5004849	.5004856	.5004852	980.812	
	10	A6	D	Aug. 23......	517.46	569.88	5.2	1.8	19.85	56	.5004836	.5004391	−10	−203	+8	−110	+360	−10	.5004511	.5004536	.5004524	980.808	
	11	A6	D	Aug. 23–24...	517.95	575.23	5.1	1.9	19.43	62	.5004831	.5004350	−10	−186	+2	−110	+360	−10	.5004517	.5004506	.5004512	980.813	
	12	A6	D	Aug. 24......	520.33	578.76	5.3	2.1	18.87	66	.5004809	.5004323	−11	−162	−2	−110	+360	−10	.5004514	.5004498	.5004506	980.815	
No. 190. Crosby, N. Dak., C. L. Garner.	1	A4	D	Aug. 27......	369.54	386.66	5.3	2.2	16.20	55	.5006774	.5006474	−12	−50	+8	−112	+209	−12	.5006596	.5006617	.5006606	980.811	980.810 ±0.001
	2	A4	D	Aug. 27–28...	368.34	386.56	5.4	2.0	16.44	61	.5006796	.5006476	−11	−60	+3	−112	+209	−12	.5006604	.5006605	.5006604	980.812	
	3	A4	D	Aug. 28......	367.13	386.78	5.3	2.0	16.44	65	.5006819	.5006472	−11	−60	−1	−112	+209	−12	.5006623	.5006597	.5006610	980.810	
	4	A5	D	Aug. 28......	499.24	542.06	5.3	2.0	16.00	56	.5005013	.5004616	−11	−42	+7	−94	+304	−12	.5004861	.5004862	.5004862	980.808	
	5	A5	D	Aug. 28–29...	499.86	543.01	5.3	1.9	15.78	63	.5005006	.5004608	−11	−33	0	−94	+304	−12	.5004856	.5004856	.5004856	980.810	
	6	A5	D	Aug. 29......	500.82	544.25	5.3	1.8	15.48	57	.5004997	.5004598	−10	−20	+6	−94	+304	−12	.5004867	.5004866	.5004866	980.807	
	7	A6	D	Aug. 29......	539.39	588.75	5.2	2.2	15.41	52	.5004639	.5004250	−12	−17	+11	−108	+287	−12	.5004501	.5004507	.5004504	980.816	
	8	A6	D	Aug. 29–30...	536.60	586.39	5.1	1.8	15.48	60	.5004663	.5004267	−9	−20	+3	−108	+287	−12	.5004517	.5004516	.5004516	980.811	
	9	A6	D	Aug. 30......	534.72	585.36	5.0	1.9	15.48	66	.5004680	.5004275	−10	−20	−3	−108	+287	−12	.5004527	.5004517	.5004522	980.809	
No. 192. Poplar, Mont., C. L. Garner.	1	A4	D	Sept. 2......	349.46	371.98	5.4	2.1	20.59	56	.5007164	.5006730	−11	−234	+8	−101	+332	−11	.5006815	.5006814	.5006814	980.730	980.727 ±0.001
	2	A4	D	Sept. 2–3....	349.08	371.20	5.0	1.9	20.55	63	.5007172	.5006744	−10	−233	+1	−101	+332	−11	.5006818	.5006823	.5006820	980.728	
	3	A4	D	Sept. 3......	348.98	371.69	5.0	1.9	20.45	58	.5007174	.5006735	−10	−228	+6	−101	+332	−11	.5006830	.5006824	.5006827	980.725	
	4	A5	D	Sept. 3......	466.15	502.60	5.5	2.1	20.41	58	.5005369	.5004979	−12	−227	+6	−79	+329	−11	.5005046	.5005064	.5005055	980.732	
	5	A5	D	Sept. 3–4....	464.72	503.73	5.4	2.1	20.33	52	.5005385	.5004968	−11	−223	+12	−79	+329	−11	.5005073	.5005064	.5005068	980.727	
	6	A5	D	Sept. 4......	464.23	503.38	5.3	2.1	20.25	55	.5005391	.5004971	−11	−220	+9	−79	+329	−11	.5005079	.5005067	.5005073	980.726	
	7	A6	D	Sept. 4......	497.32	540.32	5.4	2.1	20.30	53	.5005032	.5004631	−11	−222	+11	−59	+334	−11	.5004740	.5004732	.5004736	980.725	
	8	A6	D	Sept. 4–5....	498.12	540.00	5.2	2.0	20.33	58	.5005024	.5004634	−11	−223	+6	−59	+334	−11	.5004726	.5004729	.5004728	980.728	
	9	A6	D	Sept. 5......	497.64	538.16	5.1	1.9	20.33	61	.5005029	.5004650	−10	−223	+3	−59	+334	−11	.5004729	.5004743	.5004736	980.725	
No. 188. Marmarth, N. Dak., C. L. Garner.	1	A4	D	Sept. 10.....	337.91	349.59	5.3	2.0	15.28	55	.5007410	.5007161	−11	−12	+8	−46	+246	−11	.5007338	.5007381	.5007360	980.516	980.521 ±0.001
	2	A4	D	Sept. 10–11..	336.00	349.09	5.3	1.9	15.91	63	.5007452	.5007172	−11	−38	0	−46	+246	−11	.5007346	.5007358	.5007352	980.519	
	3	A4	D	Sept. 11.....	335.18	347.93	5.3	2.2	16.26	56	.5007470	.5007195	−12	−53	+7	−46	+246	−11	.5007355	.5007372	.5007364	980.514	
	4	A4	D	Sept. 11.....	335.80	348.96	5.0	1.6	16.54	53	.5007456	.5007175	−8	−65	+10	−46	+246	−11	.5007336	.5007347	.5007342	980.523	
	5	A4	D	Sept. 11–12..	331.26	346.98	5.4	1.5	18.23	59	.5007559	.5007215	−9	−135	+5	−46	+246	−11	.5007363	.5007311	.5007337	980.525	
	6	A4	D	Sept. 12.....	329.74	345.29	5.3	2.5	19.00	63	.5007593	.5007251	−13	−168	+1	−46	+246	−11	.5007356	.5007306	.5007331	980.527	
	7	A5	D	Sept. 12.....	426.77	454.22	5.2	1.9	19.77	55	.5005865	.5005510	−11	−200	+9	−64	+289	−11	.5005588	.5005586	.5005587	980.524	
	8	A5	D	Sept. 12–13..	424.42	453.26	5.4	2.2	20.25	60	.5005898	.5005522	−12	−220	+4	−64	+289	−11	.5005595	.5005572	.5005584	980.525	
	9	A5	D	Sept. 13.....	425.85	451.92	5.2	2.0	19.65	63	.5005878	.5005538	−11	−195	+1	−64	+289	−11	.5005598	.5005611	.5005604	980.518	
	10	A6	D	Sept. 13.....	455.54	485.99	5.2	1.9	19.20	55	.5005494	.5005149	−11	−176	+9	−65	+304	−11	.5005240	.5005264	.5005252	980.523	
	11	A6	D	Sept. 13–14..	449.60	483.76	5.2	1.9	20.33	60	.5005567	.5005173	−11	−223	+4	−65	+304	−11	.5005261	.5005236	.5005248	980.524	
	12	A6	D	Sept. 14.....	447.18	479.28	5.3	2.1	20.73	64	.5005597	.5005222	−11	−240	0	−65	+304	−11	.5005270	.5005264	.5005267	980.517	
No. 193. Miles City, Mont., C. L. Garner.	1	A4	D	Sept. 17.....	333.89	340.06	5.4	2.0	17.95	60	.5007498	.5007363	−11	−124	+4	−59	+83	−10	.5007298	.5007305	.5007302	980.539	980.539 ±0.001
	2	A4	D	Sept. 17–18..	333.59	340.40	5.1	1.7	18.07	60	.5007505	.5007355	−9	−129	+4	−59	+83	−10	.5007302	.5007294	.5007298	980.540	
	3	A4	D	Sept. 18.....	333.56	339.96	5.3	2.1	18.03	64	.5007506	.5007365	−11	−127	0	−59	+83	−10	.5007299	.5007300	.5007300	980.540	
	4	A5	D	Sept. 18.....	435.94	446.88	5.5	1.8	17.85	54	.5005741	.5005600	−11	−119	+9	−68	+94	−10	.5005542	.5005563	.5005552	980.538	
	5	A5	D	Sept. 18–19..	433.66	446.84	5.1	2.0	18.05	62	.5005773	.5005601	−10	−128	+2	−68	+94	−10	.5005559	.5005549	.5005554	980.537	
	6	A5	D	Sept. 19.....	432.23	445.99	5.3	1.7	18.05	68	.5005791	.5005612	−10	−128	−4	−68	+94	−10	.5005571	.5005554	.5005562	980.534	
	7	A6	D	Sept. 19.....	461.82	477.26	5.0	2.0	17.80	53	.5005419	.5005244	−10	−117	+10	−88	+75	−10	.5005204	.5005192	.5005198	980.544	
	8	A6	D	Sept. 19–20..	462.57	477.72	5.0	1.9	17.37	59	.5005410	.5005239	−10	−99	+4	−88	+75	−10	.5005207	.5005199	.5005203	980.542	
	9	A6	D	Sept. 20.....	466.29	479.04	5.2	1.6	16.64	59	.5005368	.5005225	−9	−69	+4	−88	+75	−10	.5005196	.5005216	.5005206	980.541	

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1828	Chronometer No. 1838	Initial	Final			Chronometer No. 1828	Chronometer No. 1838	Arc	Temperature	Pressure	Rate: Chronometer No. 1828	Rate: Chronometer No. 1838	Flexure	Chronometer No. 1828	Chronometer No. 1838	Mean		
				1915	*s.*	*s.*	*mm.*	*mm.*	° *C.*	*mm.*	*s.*	*s.*							*s.*	*s.*	*s.*	*Dynes*	*Dynes*
No. 194. Huntley, Mont., C. L. Garner.	1	A4	D	Sept. 22	328.38	331.15	5.4	2.2	14.34	53	0.5007625	0.5007561	− 12	+ 28	+ 10	− 8	+ 62	− 12	0.5007631	0.5007637	0.5007634	980.409	980.410 ±0.000
	2	A4	D	Sept. 22–23	327.78	330.62	5.1	1.8	14.51	64	.5007639	.5007573	− 9	+ 21	− 1	− 8	+ 62	− 12	.5007630	.5007634	.5007632	980.410	
	3	A4	D	Sept. 23	327.48	330.92	5.3	2.1	14.61	61	.5007646	.5007566	− 11	+ 16	+ 2	− 8	+ 62	− 12	.5007633	.5007623	.5007628	980.411	
	4	A5	D	Sept. 23	425.68	431.65	5.3	2.0	14.46	58	.5005880	.5005798	− 11	+ 23	+ 5	− 23	+ 79	− 12	.5005862	.5005882	.5005872	980.412	
	5	A5	D	Sept. 23–24	423.84	431.50	5.2	2.0	14.56	56	.5005906	.5005800	− 11	+ 18	+ 7	− 23	+ 79	− 12	.5005885	.5005881	.5005883	980.408	
	6	A5	D	Sept. 24	422.62	431.30	5.3	2.0	14.76	58	.5005923	.5005803	− 11	+ 10	+ 5	− 23	+ 79	− 12	.5005892	.5005874	.5005883	980.408	
	7	A6	D	Sept. 24	447.67	457.52	4.9	1.8	15.05	59	.5005591	.5005470	− 9	− 2	+ 4	− 38	+ 85	− 12	.5005534	.5005536	.5005535	980.412	
	8	A6	D	Sept. 24–25	447.64	457.86	5.0	1.9	15.06	58	.5005591	.5005466	− 10	− 3	+ 5	− 38	+ 85	− 12	.5005533	.5005531	.5005532	980.413	
	9	A6	D	Sept. 25	447.45	457.74	5.3	2.0	14.91	59	.5005594	.5005467	− 11	+ 4	+ 4	− 38	+ 85	− 12	.5005541	.5005537	.5005539	980.410	
No. 195. Lander, Wyo., C. L. Garner.	1	A4	D	Sept. 29	274.40	282.60	5.2	1.8	17.05	55	.5009127	.5008862	− 10	− 86	+ 8	−134	+126	− 10	.5008895	.5008890	.5008892	979.916	979.914 ±0.001
	2	A4	D	Sept. 29–30	274.96	282.48	5.4	2.1	16.96	54	.5009109	.5008866	− 11	− 82	+ 9	−134	+126	− 10	.5008881	.5008898	.5008890	979.917	
	3	A4	D	Sept. 30	274.06	282.33	5.4	1.9	16.78	62	.5009139	.5008871	− 11	− 75	+ 2	−134	+126	− 10	.5008911	.5008903	.5008907	979.910	
	4	A5	D	Sept. 30	340.10	352.74	5.4	2.0	16.78	51	.5007362	.5007097	− 11	− 75	+ 12	−135	+126	− 10	.5007143	.5007139	.5007141	979.916	
	5	A5	D	Sept. 30–Oct. 1.	339.88	352.30	5.3	1.9	16.66	58	.5007366	.5007106	− 11	− 70	+ 5	−135	+126	− 10	.5007145	.5007146	.5007146	979.913	
	6	A5	D	Oct. 1	340.42	352.80	5.2	1.9	16.56	58	.5007355	.5007096	− 11	− 65	+ 5	−135	+126	− 10	.5007139	.5007141	.5007140	979.916	
	7	A6	D	Oct. 1	356.43	369.80	5.2	1.9	16.83	52	.5007023	.5006770	− 11	− 77	+ 11	−126	+123	− 10	.5006810	.5006806	.5006808	979.913	
	8	A6	D	Oct. 1–2	356.36	369.38	5.3	1.8	16.78	62	.5007025	.5006777	− 10	− 75	+ 2	−126	+123	− 10	.5006806	.5006807	.5006806	979.914	
	9	A6	D	Oct. 2	357.03	369.90	5.3	1.9	16.48	58	.5007012	.5006768	− 11	− 62	+ 5	−126	+123	− 10	.5006808	.5006813	.5006810	979.912	
No. 198. Edgemont, S. Dak., C. L. Garner.	1	A4	D	Oct. 5	300.88	307.58	5.5	2.4	15.24	54	.5008323	.5008141	− 14	− 10	+ 9	−101	+126	− 13	.5008194	.5008239	.5008216	980.181	980.183 ±0.001
	2	A4	D	Oct. 5–6	297.22	305.07	5.3	1.9	17.16	61	.5008425	.5008209	− 11	− 90	+ 3	−101	+126	− 13	.5008213	.5008224	.5008218	980.180	
	3	A4	D	Oct. 6	295.26	303.38	5.2	2.1	18.35	57	.5008481	.5008254	− 11	−140	+ 6	−101	+126	− 13	.5008222	.5008222	.5008222	980.178	
	4	A4	D	Oct. 6	293.50	302.13	5.3	2.1	19.58	58	.5008532	.5008288	− 11	−192	+ 6	−101	+126	− 13	.5008221	.5008204	.5008212	980.183	
	5	A4	D	Oct. 6–7	292.46	301.30	5.3	2.0	20.40	57	.5008563	.5008311	− 11	−226	+ 7	−101	+126	− 13	.5008219	.5008194	.5008206	980.185	
	6	A4	D	Oct. 7	292.10	[illegible].68	5.3	2.0	20.55	62	.5008573	.5008328	− 11	−233	+ 2	−101	+126	− 13	.5008217	.5008199	.5008208	980.184	
	7	A5	D	Oct. 7	367.00	381.50	5.5	2.0	20.90	55	.5006821	.5006562	− 12	−247	+ 9	−106	+154	− 13	.5006452	.5006453	.5006452	980.186	
	8	A5	D	Oct. 7–8	365.54	380.40	5.3	1.9	21.27	61	.5006848	.5006581	− 11	−263	+ 3	−106	+154	− 13	.5006458	.5006451	.5006454	980.185	
	9	A5	D	Oct. 8	367.27	381.74	5.2	2.1	20.70	60	.5006817	.5006557	− 11	−239	+ 4	−106	+154	− 13	.5006452	.5006452	.5006452	980.186	
	10	A6	D	Oct. 8	387.58	403.32	5.3	2.0	20.20	57	.5006458	.5006207	− 11	−218	+ 7	−117	+136	− 13	.5006106	.5006108	.5006107	980.188	
	11	A6	D	Oct. 8–9	385.00	401.22	5.3	1.9	20.60	64	.5006502	.5006239	− 11	−235	0	−117	+136	− 13	.5006126	.5006116	.5006121	980.181	
	12	A6	D	Oct. 9	385.30	400.32	5.3	2.0	20.57	59	.5006497	.5006253	− 11	−233	+ 5	−117	+136	− 13	.5006128	.5006137	.5006132	980.178	
No. 202. Moorcroft, Wyo., C. L. Garner.	1	A4	D	Oct. 12	308.89	317.65	5.2	1.4	12.09	59	.5008106	.5007882	− 9	+122	+ 3	0	+238	− 10	.5008212	.5008226	.5008219	980.180	980.183 ±0.002
	2	A4	D	Oct. 12–13	307.13	316.67	5.5	1.5	12.49	54	.5008153	.5007907	− 10	+105	+ 8	0	+238	− 10	.5008246	.5008238	.5008242	980.171	
	3	A4	D	Oct. 13	306.40	316.22	5.5	1.6	12.72	57	.5008173	.5007918	− 10	+ 96	+ 5	0	+238	− 10	.5008254	.5008237	.5008246	980.169	
	10	A4	D	Oct. 15	304.72	314.20	5.5	2.2	13.47	55	.5008218	.5007969	− 13	+ 64	+ 7	− 59	+189	− 10	.5008207	.5008206	.5008206	980.185	
	11	A4	D	Oct. 15–16	304.36	313.82	5.3	2.0	13.60	59	.5008227	.5007979	− 11	+ 59	+ 4	− 59	+189	− 10	.5008210	.5008210	.5008210	980.183	
	12	A4	D	Oct. 16	303.90	313.34	5.2	1.8	13.68	65	.5008240	.5007991	− 10	+ 55	− 2	− 59	+189	− 10	.5008214	.5008213	.5008214	980.182	
	4	A5	D	Oct. 13	389.04	404.77	5.5	2.2	12.95	54	.5006434	.5006184	− 13	+ 86	+ 8	− 81	+164	− 10	.5006424	.5006419	.5006422	980.197	
	5	A5	D	Oct. 13–14	388.22	403.71	5.4	2.1	13.02	60	.5006448	.5006200	− 11	+ 83	+ 3	− 81	+164	− 10	.5006432	.5006429	.5006430	980.194	
	6	A5	D	Oct. 14	389.50	404.61	5.4	1.9	12.75	60	.5006427	.5006187	− 11	+ 94	+ 3	− 81	+164	− 10	.5006422	.5006427	.5006424	980.196	
	7	A6	D	Oct. 14	411.45	426.93	5.3	1.9	12.70	57	.5006084	.5005863	− 11	+ 96	+ 5	− 43	+192	− 10	.5006121	.5006135	.5006128	980.180	
	8	A6	D	Oct. 14–15	410.00	426.62	5.1	2.1	13.07	56	.5006105	.5005867	− 10	+ 81	+ 7	− 43	+192	− 10	.5006130	.5006127	.5006128	980.180	
	9	A6	D	Oct. 15	408.66	425.91	5.0	1.8	13.32	61	.5006125	.5005877	− 9	+ 70	+ 2	− 43	+192	− 10	.5006135	.5006122	.5006128	980.180	

No. 201. Wasta, S. Dak., C. L. Garner.	1	A4	D	Oct. 20......	322.30	330.89	5.3	1.9	12.17	62	.5007769	.5007567	−11	+119	+1	−58	+144	−10	.5007810	.5007810	.5007810	980.340	980.339 ±0.001
	2	A4	D	Oct. 20–21...	321.52	329.96	5.3	2.1	12.57	58	.5007788	.5007588	−11	+102	+4	−58	+144	−10	.5007815	.5007817	.5007816	980.337	
	3	A4	D	Oct. 21......	320.87	329.66	5.4	1.9	12.75	58	.5007804	.5007595	−11	+94	+4	−58	+144	−10	.5007823	.5007816	.5007820	980.336	
	4	A5	D	Oct. 21......	414.60	428.34	5.4	1.6	12.91	57	.5006037	.5005843	−9	+88	+5	−67	+130	−10	.5006044	.5006017	.5006046	980.344	
	5	A5	D	Oct. 21–22...	412.87	426.82	5.5	1.9	13.17	57	.5006063	.5005864	−12	+77	+6	−67	+130	−10	.5006057	.5006055	.5006056	980.340	
	6	A5	D	Oct. 22......	412.28	426.54	5.3	1.9	13.22	58	.5006071	.5005868	−11	+75	+5	−67	+130	−10	.5006063	.5006057	.5006060	980.339	
	7	A6	D	Oct. 22......	435.74	451.34	5.5	2.0	13.38	57	.5005744	.5005545	−12	+68	+6	−69	+120	−10	.5005727	.5005717	.5005722	980.339	
	8	A6	D	Oct. 22–23...	435.83	450.20	5.3	1.9	13.55	56	.5005742	.5005560	−11	+61	+7	−69	+120	−10	.5005720	.5005727	.5005724	980.338	
	9	A6	D	Oct. 23......	435.79	450.37	5.1	1.8	13.57	59	.5005743	.5005558	−9	+60	+4	−69	+120	−10	.5005719	.5005723	.5005721	980.339	
No. 206. Valentine, Nebr., C. L. Garner.	1	A4	D	Oct. 26......	294.96	306.22	5.4	2.2	20.49	57	.5008490	.5008177	−12	−230	+7	−107	+195	−9	.5008139	.5008128	.5008134	980.213	980.211 ±0.000
	2	A4	D	Oct. 26–27...	295.00	305.76	5.2	2.0	20.45	60	.5008489	.5008190	−11	−228	+4	−107	+195	−9	.5008138	.5008141	.5008140	980.210	
	3	A4	D	Oct. 27......	295.75	306.27	5.2	2.0	19.95	58	.5008468	.5008176	−11	−207	+6	−107	+195	−9	.5008140	.5008150	.5008145	980.209	
	4	A5	D	Oct. 27......	371.94	390.03	5.2	2.1	20.33	52	.5006731	.5006418	−11	−223	+11	−109	+189	−9	.5006390	.5006375	.5006382	980.213	
	5	A5	D	Oct. 27–28...	370.74	388.00	5.2	2.0	20.69	58	.5006752	.5006452	−11	−238	+6	−109	+189	−9	.5006391	.5006389	.5006390	980.210	
	6	A5	D	Oct. 28......	371.92	388.16	5.4	1.9	20.20	62	.5006731	.5006449	−11	−218	+2	−109	+189	−9	.5006386	.5006402	.5006394	980.208	
	7	A6	D	Oct. 28......	391.54	410.20	5.1	1.9	20.35	55	.5006393	.5006102	−10	−224	+9	−110	+174	−9	.5006049	.5006042	.5006046	980.212	
	8	A6	D	Oct. 28–29...	390.64	408.82	5.2	2.0	20.47	60	.5006108	.5006123	−11	−229	+4	−110	+174	−9	.5006053	.5006052	.5006052	980.209	
	9	A6	D	Oct. 29......	392.28	410.15	5.1	1.7	20.00	65	.5006381	.5006103	−9	−209	−1	−110	+174	−9	.5006043	.5006049	.5006046	980.212	
No. 205. Randolph, Nebr., C. L. Garner.	1	A4	D	Nov. 2......	302.48	310.14	5.5	2.2	17.42	56	.5008279	.5008074	−13	−101	+7	−85	+123	−12	.5008075	.5008078	.5008076	980.236	980.236 ±0.000
	2	A4	D	Nov. 2–3....	301.92	309.75	5.2	1.3	17.90	60	.5008294	.5008084	−8	−122	+4	−85	+123	−12	.5008071	.5008069	.5008070	980.238	
	3	A4	D	Nov. 3......	301.01	308.90	5.1	2.8	18.00	67	.5008320	.5008106	−13	−126	−3	−85	+123	−12	.5008081	.5008075	.5008078	980.235	
	4	A5	D	Nov. 3......	380.91	394.44	5.3	1.9	18.31	63	.5006572	.5006346	−11	−139	+1	−94	+136	−12	.5006317	.5006321	.5006319	980.237	
	5	A5	D	Nov. 3–4....	380.08	393.82	5.3	2.0	18.67	58	.5006586	.5006356	−11	−154	+5	−94	+136	−12	.5006320	.5006320	.5006320	980.237	
	6	A5	D	Nov. 4......	378.95	392.96	5.3	2.0	18.83	64	.5006606	.5006370	−11	−160	0	−94	+136	−12	.5006329	.5006323	.5006326	980.235	
	7	A6	D	Nov. 4......	402 02	416.30	5.3	1.9	18.57	56	.5006227	.5006012	−11	−150	+8	−82	+134	−12	.5005980	.5005981	.5005980	980.237	
	8	A6	D	Nov. 4–5....	401.77	415.98	5.3	1.9	18.37	63	.5006230	.5006017	−11	−141	+1	−82	+134	−12	.5005985	.5005988	.5005986	980.235	
	9	A6	D	Nov. 5......	402.36	417.02	5.1	1.6	18.20	58	.5006221	.5006002	−8	−134	+5	−82	+134	−12	.5005990	.5005987	.5005988	980.234	
No. 208. Leon, Iowa, C. L. Garner.	1	A4	D	Nov. 10.....	281.84	291.78	5.4	2.2	23.36	53	.5008886	.5008496	−12	−350	+11	−189	+206	−11	.5008335	.5008340	.5008338	980.133	980.133 ±0.001
	2	A4	D	Nov. 10–11..	280.48	293.96	5.2	2.0	24.16	61	.5008930	.5008519	−11	−384	+4	−189	+206	−11	.5008339	.5008323	.5008331	980.136	
	3	A4	D	Nov. 11.....	280.91	293 77	5.2	2.0	23.74	63	.5008916	.5008525	−11	−366	+2	−189	+206	−11	.5008311	.5008345	.5008313	980.131	
	4	A5	D	Nov. 11.....	351.44	373.14	5.3	2.1	23.06	58	.5007124	.5006709	−11	−338	+6	−195	+206	−11	.5006575	.5006561	.5006568	980.140	
	5	A5	D	Nov. 11–12..	351.84	373.06	5.3	2.1	22.62	59	.5007115	.5006710	−11	−319	+6	−195	+206	−11	.5006585	.5006581	.5006583	980.134	
	6	A5	D	Nov. 12.....	354.39	374.84	5.2	1.9	21.57	60	.5007064	.5006678	−11	−275	+4	−195	+206	−11	.5006576	.5006591	.5006584	980.134	
	7	A6	D	Nov. 12.....	371.54	393.72	5.2	2.1	21.92	56	.5006738	.5006358	−11	−290	+8	−171	+186	−11	.5006263	.5006240	.5006252	980.131	
	8	A6	D	Nov. 12–13..	372.46	393.24	5.2	2.0	21.86	59	.5006721	.5006365	−11	−287	+5	−171	+186	−11	.5006246	.5006247	.5006246	980.133	
	9	A6	D	Nov. 13.....	374.51	394.14	5.2	1.9	21.00	60	.5006684	.5006351	−11	−251	+4	−171	+186	−11	.5006244	.5006268	.5006256	980.129	
No. 209. Laurel, Md., C. L. Garner.	1	A4	D	Nov. 18.....	289.32	299.14	5.5	2.3	18.30	65	.5008656	.5008371	−13	−138	−1	−127	+178	−13	.5008364	.5008384	.5008374	980.119	980.118 ±0.001
	2	A4	D	Nov. 18–19.	287.38	297.93	5.1	1.8	19.57	62	.5008715	.5008403	−9	−191	+2	−127	+178	−13	.5008377	.5008370	.5008374	980.119	
	3	A4	D	Nov. 19.....	285.54	296.58	5.4	2.2	20.76	61	.5008771	.5008444	−12	−211	+3	−127	+178	−13	.5008381	.5008359	.5008370	980.121	
	4	A5	D	Nov. 19.....	352.86	369.48	5.3	1.9	22.64	55	.5007095	.5006775	−11	−320	+9	−130	+200	−13	.5006630	.5006640	.5006635	980.114	
	5	A5	D	Nov. 19–20..	352.64	369.05	5.4	2.0	22.62	59	.5007099	.5006783	−11	−319	+5	−130	+200	−13	.5006631	.5006645	.5006658	980.112	
	6	A5	D	Nov. 20.....	353.00	370.09	5.3	2.1	22.38	62	.5007092	.5006764	−11	−309	+2	−130	+200	−13	.5006631	.5006633	.5006632	980.115	
	7	A6	D	Nov. 20.....	370.13	390.00	5.2	2.0	23.16	57	.5006763	.5006418	−11	−342	+8	−130	+200	−13	.5006275	.5006260	.5006268	980.125	
	8	A6	D	Nov. 20–21..	369.36	388.58	5.2	1.7	23.39	59	.5006778	.5006412	−10	−352	+6	−130	+200	−13	.5006279	.5006273	.5006276	980.121	
	9	A6	D	Nov. 21.....	368.92	388.00	5.1	1.9	23.38	61	.5006786	.5006452	−10	−351	+4	−130	+200	−13	.5006286	.5006282	.5006284	980.118	
	10	A6	D	Nov. 21.....	368.30	388.22	5.0	1.8	23.64	58	.5006797	.5006448	−9	−362	+6	−135	+205	−13	.5006284	.5006275	.5006280	980.120	
	11	A6	D	Nov. 21–22..	367.46	386.82	5.1	1.8	23.69	63	.5006813	.5006472	−9	−364	+2	−135	+205	−13	.5006294	.5006293	.5006294	980.114	
	12	A6	D	Nov. 22.....	368.66	387.60	5.2	1.9	23.09	63	.5006791	.5006458	−11	−339	+2	−135	+205	−13	.5006295	.5006302	.5006298	980.113	
No. 212. Rockville, Md., C. L. Garner.	1	A4	D	Nov. 27.....	290.04	298.75	5.4	2.2	17.80	59	.5008635	.5008382	−12	−117	+5	−88	+148	−12	.5008411	.5008394	.5008402	980.108	980.111 ±0.001
	2	A4	D	Nov. 27–28..	290.38	298.50	5.2	1.9	17.90	60	.5008625	.5008389	−11	−122	+4	−88	+148	−12	.5008396	.5008396	.5008396	980.110	
	3	A4	D	Nov. 28.....	291.56	299.16	5.4	2.2	17.41	60	.5008589	.5008371	−12	−101	+4	−88	+148	−12	.5008380	.5008398	.5008389	980.113	
	4	A5	D	Nov. 28.....	366.78	379.30	5.3	2.1	16.89	65	.5006825	.5006600	−11	−79	−1	−97	+136	−12	.5006625	.5006633	.5006629	980.116	
	5	A5	D	Nov. 28–29..	366.80	379.38	5.3	2.0	16.91	60	.5006825	.5006598	−11	−80	+4	−97	+136	−12	.5006629	.5006635	.5006632	980.115	
	6	A5	D	Nov. 29.....	365.14	378.87	5.1	2.1	17.15	59	.5006856	.5006608	−10	−90	+5	−97	+136	−12	.5006652	.5006637	.5006644	980.110	
	7	A6	D	Nov. 29.....	381.06	397.34	5.1	2.1	17.74	60	.5006569	.5006300	−10	−115	+4	−127	+142	−12	.5006309	.5006309	.5006309	980.108	
	8	A6	D	Nov. 29–30..	381.87	398.11	4.9	1.7	17.54	62	.5006555	.5006288	−9	−106	+2	−127	+142	−12	.5006303	.5006305	.5006304	980.111	
	9	A6	D	Nov. 30.....	383.08	399.64	5.1	1.6	16.98	63	.5006534	.5006263	−8	−83	+1	−127	+142	−12	.5006305	.5006303	.5006304	980.111	
No. 214. Fairfax, Va., C. L. Garner.	1	A4	D	Dec. 3.......	311.78	318.22	5.5	2.0	4.16	61	.5008031	.5007869	−12	+454	0	+16	+185	−9	.5008480	.5008487	.5008484	980.076	980.079 ±0.001
	2	A4	D	Dec. 3–4.....	310.61	317.28	5.3	1.8	4.74	63	.5008062	.5007892	−10	+430	−2	+16	+185	−9	.5008487	.5008486	.5008486	980.075	
	3	A4	D	Dec. 4.......	310.94	317.58	5.5	2.4	4.79	55	.5008053	.5007884	−14	+428	+6	+16	+185	−9	.5008480	.5008480	.5008480	980.077	
	4	A5	D	Dec. 4.......	400.00	410.79	5.3	1.3	4.39	64	.5006258	.5006093	−8	+445	−3	+26	+193	−9	.5006709	.5006711	.5006710	980.084	
	5	A5	D	Dec. 4–5.....	399.46	410.33	5.5	1.0	4.44	60	.5006266	.5006100	−8	+442	+1	+26	+193	−9	.5006718	.5006719	.5006718	980.081	
	6	A5	D	Dec. 5.......	399.89	411.36	5.9	1.5	4.26	60	.5006259	.5006085	−11	+450	+1	+26	+193	−9	.5006716	.5006709	.5006712	980.084	
	7	A6	D	Dec. 5.......	424.71	436.26	5.1	1.9	3.83	57	.5005893	.5005737	−10	+468	+4	+38	+197	−9	.5006384	.5006387	.5006386	980.079	
	8	A6	D	Dec. 5–6.....	424.39	435.83	5.4	1.9	3.79	59	.5005898	.5005742	−11	+470	+2	+38	+197	−9	.5006388	.5006391	.5006390	980.077	
	9	A6	D	Dec. 6.......	425.05	437.38	5.3	2.1	3.67	58	.5005888	.5005722	−11	+475	+3	+38	+197	−9	.5006384	.5006377	.5006380	980.081	

Pendulum observations and reductions—Continued.

Station and observer	Swing No.	Pendulum	Position	Date	Coincidence interval		Total arc		Temperature	Pressure	Period uncorrected		Corrections (seventh decimal place)						Period corrected			g	Mean g
					Chronometer No. 1828	Chronometer No. 1838	Initial	Final			Chronometer No. 1828	Chronometer No. 1838	Arc	Temperature	Pressure	Rate		Flexure	Chronometer No. 1828	Chronometer No. 1838	Mean		
																Chronometer No. 1828	Chronometer No. 1838						
				1915	*s.*	*s.*	*mm.*	*mm.*	° *C.*	*mm.*	*s.*	*s.*							*s.*	*s.*	*s.*	*Dynes*	*Dynes*
No. 213. Upper Marlboro, Md., C. L. Garner.	1	A4	D	Dec. 11......	319.25	321.44	5.0	2.3	3.14	64	0.5007846	0.5007791	− 11	+497	− 3	+131	+197	− 18	0.5008442	0.5008453	0.5008448	980.090	980.085 ±0.001
	2	A4	D	Dec. 11–12...	320.09	322.78	5.2	0.7	2.87	58	.5007822	.5007757	− 6	+508	+ 3	+131	+197	− 18	.5008440	.5008441	.5008440	980.093	
	3	A4	D	Dec. 12......	319.58	322.76	5.8	1.4	2.51	63	.5007835	.5007758	− 11	+523	− 3	+131	+197	− 18	.5008457	.5008446	.5008452	980.089	
	4	A5	D	Dec. 12......	408.45	415.98	5.6	2.1	2.74	58	.5006128	.5006017	− 12	+511	+ 3	+ 88	+215	− 18	.5006703	.5006719	.5006711	980.081	
	5	A5	D	Dec. 12–13...	406.06	415.05	5.2	2.0	3.07	65	.5006164	.5006030	− 11	+500	− 4	+ 88	+215	− 18	.5006719	.5006712	.5006716	980.082	
	6	A5	D	Dec. 13......	404.90	414.78	5.4	2.2	3.27	61	.5006182	.5006034	− 12	+492	0	+ 88	+215	− 18	.5006732	.5006711	.5006722	980.079	
	7	A6	D	Dec. 13......	426.24	438.23	5.2	1.8	3.81	59	.5005872	.5005711	− 10	+469	+ 2	+ 59	+223	− 18	.5006374	.5006377	.5006376	980.083	
	8	A6	D	Dec. 13–14...	426.78	439.16	5.1	2.0	3.77	55	.5005864	.5005699	− 10	+471	+ 6	+ 59	+223	− 18	.5006372	.5006371	.5006372	980.084	
	9	A6	D	Dec. 14......	426.22	439.07	5.1	1.9	3.64	62	.5005873	.5005700	− 10	+476	—	+ 59	+223	− 18	.5006379	.5006370	.5006374	980.083	
				1916																			
No. 219. Hagerstown, Md., C. L. Garner.	1	A4	D	Jan. 8.......	280.91	291.58	5.7	2.5	20.36	49	.5008916	.5008589	− 14	−225	+ 14	−111	+194	− 9	.5008571	.5008549	.5008560	980.046	980.048 ±0.001
	2	A4	D	Jan. 8–9.....	282.36	291.85	5.3	1.9	19.97	55	.5008870	.5008580	− 11	−208	+ 9	−111	+194	− 9	.5008540	.5008555	.5008548	980.051	
	3	A4	D	Jan. 9.......	282.73	292.36	5.2	2.1	19.65	56	.5008858	.5008566	− 11	−195	+ 8	−111	+194	− 9	.5008540	.5008553	.5008546	980.052	
	4	A5	D	Jan. 9.......	351.44	365.62	5.4	2.0	19.93	56	.5007124	.5006847	− 11	−207	+ 8	− 96	+196	− 9	.5006809	.5006824	.5006816	980.043	
	5	A5	D	Jan. 9–10....	351.08	366.16	5.2	1.4	20.33	58	.5007131	.5006837	− 9	−223	+ 6	− 96	+196	− 9	.5006800	.5006798	.5006799	980.049	
	6	A5	D	Jan. 10......	349.82	365.44	5.2	2.8	20.57	59	.5007157	.5006850	− 14	−233	+ 5	− 96	+196	− 9	.5006810	.5006795	.5006802	980.048	
	7	A6	D	Jan. 10......	365.76	383.11	5.1	1.9	20.85	54	.5006845	.5006534	− 10	−245	+ 10	−121	+207	− 9	.5006470	.5006487	.5006478	980.042	
	8	A6	D	Jan. 10–11...	364.96	383.70	5.0	1.8	21.27	56	.5006860	.5006524	− 9	−263	+ 8	−121	+207	− 9	.5006466	.5006458	.5006462	980.049	
	9	A6	D	Jan. 11......	364.08	382.96	5.2	2.0	21.53	57	.5006876	.5006537	− 11	−274	+ 7	−121	+207	− 9	.5006468	.5006457	.5006462	980.049	
Washington, D. C., Coast and Geodetic Survey Office, C. L. Garner.	1	A4	D	Jan. 19......	301.79	310.51	5.3	2.1	9.59	62	.5008297	.5008064	− 11	+227	0	−114	+131	− 10	.5008389	.5008401	.5008395	....	
	2	A4	D	Jan. 19–20...	301.77	311.08	5.1	1.8	9.83	48	.5008298	.5008050	− 9	+217	+ 14	−114	+131	− 10	.5008396	.5008393	.5008394	....	
	3	A4	D	Jan. 20......	301.22	310.74	5.0	1.3	10.01	56	.5008313	.5008058	− 11	+209	+ 6	−114	+131	− 10	.5008393	.5008383	.5008388	....	
	4	A5	D	Jan. 20......	381.10	395.88	5.4	1.6	10.29	57	.5006569	.5006323	− 9	+197	+ 5	−120	+133	− 10	.5006632	.5006639	.5006636	....	
	5	A5	D	Jan. 20–21...	379.72	395.04	5.0	1.8	10.40	66	.5006593	.5006337	− 9	+193	− 4	−120	+133	− 10	.5006643	.5006640	.5006642	....	
	6	A5	D	Jan. 21......	378.72	394.64	4.5	1.9	10.60	71	.5006610	.5006313	− 9	+184	− 8	−120	+133	− 10	.5006647	.5006633	.5006640	....	
	7	A6	D	Jan. 21......	397.63	414.46	5.1	1.5	11.34	63	.5006295	.5006039	− 8	+153	− 1	−139	+131	− 10	.5006290	.5006304	.5006297	....	
	8	A6	D	Jan. 21–22...	395.11	413.20	5.1	1.9	12.00	60	.5006336	.5006058	− 10	+126	+ 2	−139	+131	− 10	.5006305	.5006297	.5006301	....	
	9	A6	D	Jan. 22......	392.02	410.28	5.2	2.2	12.65	73	.5006385	.5006101	− 12	+ 98	− 10	−139	+131	− 10	.5006312	.5006298	.5006305	....	
	1	A6	D	Feb. 4.......	396.05	411.37	5.2	1.9	12.56	53	.5006320	.5006085	− 11	+102	+ 9	−116	+138	− 10	.5006294	.5006313	.5006304	....	
	2	A6	D	Feb. 4–5.....	395.76	412.88	5.1	1.8	12.46	55	.5006325	.5006062	− 9	+106	+ 7	−116	+138	− 10	.5006303	.5006294	.5006298	....	
	3	A6	D	Feb. 5.......	396.00	413.13	5.0	1.8	12.33	58	.5006321	.5006059	− 9	+112	+ 4	−116	+138	− 10	.5006302	.5006294	.5006298	....	

Chapter II.—DESCRIPTIONS OF STATIONS.

There are given below the descriptions of the 219 stations in the United States with the years in which they were established. The description is designed to enable one to recover the place where the pendulums were swung. The numbering of the stations is the same as that used in other parts of this volume.

No. 1, *Key West, Fla.* (1896).—Post office, southeast basement room. The case was mounted on the concrete floor.

No. 2, *West Palm Beach, Fla.* (1909).—Zapf's Opera House, room in basement under north part of building. The case was mounted on a concrete pier against a stone wall.

No. 3, *Punta Gorda, Fla.* (1909).—Punta Gorda Hotel, in the space partly walled in under the main entrance. The case was mounted on a low pier of concrete and brick against a buttress of the wall.

No. 4, *Apalachicola, Fla.* (1909).—Observatory pendulum room on Weather Bureau signal grounds near the center of the Florida Promenade Park between Fifth and Sixth Avenues and First and Second Streets, extended. The case was mounted on a low brick pier.

No. 5, *New Orleans, La.* (1895).—City Hall, hallway in basement of building. The case was mounted on the slate floor.

No. 6, *Rayville, La.* (1909).—Dr. J. H. Wilkins's office, medicine room in southeast corner of small one-story brick building south of the Vicksburg, Shreveport & Pacific Railway tracks and three and one-half telegraph poles west of the crossing of the Vicksburg, Shreveport & Pacific and the St. Louis, Iron Mountain & Southern Railways. The case was mounted on bricks cemented together and to the concrete floor.

No. 7, *Galveston, Tex.* (1895).—Ball High School, storeroom on the ground floor. The case was mounted on the concrete floor.

No. 8, *Point Isabel, Tex.* (1909).—Constructed pendulum room 2.65 meters north and 0.67 meter west of the longitude pier used by Assistant Smith in 1906 and about 110 meters north of the lighthouse. The case was mounted on a low concrete pier.

No. 9, *Laredo, Tex.* (1895).—Commissary of Fort McIntosh, room in the basement. The case was mounted on a low brick pier build against the foundation wall.

No. 10, *Austin, Tex.* (*capitol*) (1895).—Capitol Building, basement room southeast of the rotunda. The case was mounted on the concrete floor.

No. 11, *Austin, Tex.* (*university*) (1895).—University of Texas, main building, Aquarium room in basement. The case was mounted on the corner of a concrete wall.

No. 12, *McAlester, Okla.* (1909).—High school just east of the Masonic Temple, northeast corner of the shower-bath room on the ground floor. The case was mounted on three 6-inch cube stone blocks, each cemented to the concrete floor.

No. 13, *Little Rock, Ark.* (1896 and 1914).—Post office, north center basement room. The case was mounted on the concrete floor.

No. 14, *Columbia, Tenn.* (1909).—Old dormitory of the high and public school, in southeast corner of basement near bathing tank. The case was mounted on three 6-inch concrete blocks, each cemented to the concrete floor.

No. 15, *Atlanta, Ga.* (1896).—State Capitol, northwest basement room of the Washington Street wing. The case was mounted on the asphaltum floor.

No. 16, *McCormick, S. C.* (1909).—McCormick oil mill of the Anderson Phosphate Co., four and one-half telegraph poles west of the Charleston & Western Carolina Railway depot, in the southeast corner of the furnace room at the south end of the building. The case was mounted on a low brick pier.

No. 17, *Charleston, S. C.* (1896).—South Carolina Military Academy (citadel), storeroom in the southwest corner of the ground floor. The case was mounted on the brick floor.

No. 18, *Beaufort, N. C.* (1909).—Masonic Hall on Turner Street, one block south of the courthouse; small room near the center of the north side of the basement. The case was mounted on a low concrete pier.

No. 19, *Charlottesville, Va.* (1894).—University of Virginia, basement of biological laboratory. The case was mounted on a low brick pier.

No. 20, *Deer Park, Md.* (1894).—East corner of swimming-pool building west of the Deer Park Hotel. The case was mounted on a low stone pier.

No. 21, *Washington, D. C.* (1900).—Office of the United States Coast and Geodetic Survey, New Jersey Avenue and B Street SE., pendulum room in southwest corner of basement. The case was mounted on a massive brick pier.

No. 22, *Washington, D. C.* (*Smithsonian Institution*) (1891).—Northeast basement of the Smithsonian Institution. The case was mounted on a brick pier.

No. 23, *Baltimore, Md.* (1893).—Johns Hopkins University, basement of the physical laboratory. The case was probably mounted on a brick or masonry pier.

No. 24, *Philadelphia, Pa.* (1894).—University of Pennsylvania, small room in northwest corner of basement of College Hall. The case was mounted on the concrete floor.

No. 25, *Princeton, N. J.* (1894).—College of New Jersey, basement of magnetic observatory or electrical building. The case was mounted on a tall brick pier.

No. 26, *Hoboken, N. J.* (1891).—Basement of the Stevens Institute of Technology. The case was probably mounted on a brick or masonry pier.

No. 27, *New York, N. Y.* (1899).—Columbia University, in a small room in the sub-basement near the center of the front of the Physics Building. The case was mounted on a brick pier.

No. 28, *Worcester, Mass.* (1899).—Worcester Polytechnic Institute, in the southwest corner of the constant temperature room of the physical laboratory which is near the middle of the north side of the basement. The case was mounted on a stone pier.

No. 29, *Boston, Mass.* (1894).—New addition to State house, vault in northeast part of basement. The case was mounted on the concrete floor.

No. 30, *Cambridge, Mass.* (1894).—Harvard College Observatory, basement room north of equatorial foundation. The case was mounted on the heavy stone doorsill.

No. 31, *Calais, Me.* (1895).—Basement of high-school building. The case was mounted on the concrete floor.

No. 32, *Ithaca, N. Y.* (1894).—Cornell University, in the metric room in the northeast part of the basement of Lincoln Hall. The case was mounted on a tall brick pier.

No. 33, *Cleveland, Ohio* (1894).—Adelbert College, in balance room in the west corner of the basement. The case was mounted on a large brick pier with capstone.

No. 34, *Cincinnati, Ohio* (1894).—Cincinnati Observatory on Mount Lookout, in the basement north of the foundation of the meridian circle. The case was mounted on a low brick pier built on the brick floor.

No. 35, *Terre Haute, Ind.* (1894).—Rose Polytechnic Institute, in the west room of the basement of the main building. The case was mounted on a large brick pier with slate top.

No. 36, *Chicago, Ill.* (1894).—University of Chicago, constant temperature room in the northeast part of the main floor of the Ryerson Physical Laboratory. The case was mounted on a massive brick pier with capstone.

No. 37, *Madison, Wis.* (1906).—University of Wisconsin, in the basement of Science Hall. The case was mounted on a brick pier.

No. 38, *St. Louis, Mo.* (1894).—Washington University, in the south basement room of the chemical laboratory, which is near the northwest corner of St. Charles and Seventeenth Streets. The case was mounted on a low pier built on the brick floor.

No. 39, *Kansas City, Mo.* (1894).—Franklin School at the northeast corner of Washington Avenue and Fourteenth Street, in a small storeroom in the south part of the basement. The case was mounted on bricks cemented to the concrete floor.

No 40, *Ellsworth, Kans.* (1894).—Ellsworth County courthouse, near the center of the basement. The case was mounted on a large stone doorsill.

No. 41, *Wallace, Kans.* (1894).—Stone residence northwest of station belonging to the Union Pacific Railway, in the basement. The case was mounted on a stone doorsill.

No. 42, *Colorado Springs, Colo.* (1894). —Colorado College, small room near northeast corner of basement of Hagerman Hall. The case was mounted on a low pier built on the concrete floor.

No. 43, *Pikes Peak, Colo.* (1894).—Small storeroom at south end of stone building on the east side of the summit. The case was mounted on large stones cemented to the concrete floor.

No. 44, *Denver, Colo.* (1894).—University of Denver, in the basement of Chamberlin Observatory south of the equatorial foundation. The case was mounted on large stones cemented to the concrete floor.

No. 45, *Gunnison, Colo.* (1894).—La Veta Hotel, small room beneath the sidewalk at the northeast corner. The case was mounted on a heavy stone doorsill.

No. 46, *Grand Junction, Colo.* (1894).—Brunswick Hotel, on Main Street west of Fourth Street, in the cellar under the northeast corner. The case was mounted on a low brick pier.

No. 47, *Green River, Utah* (1894).—Palmer House, in the east corner of the cellar under the south part of the building. The case was mounted on a low brick pier built on the concrete floor.

No. 48, *Pleasant Valley Junction, Utah* (1894).—Residence of T. Arrowsmith, about 65 meters north of the Rio Grande Western Railway station, in the west corner of the cellar. The case was mounted on a low brick pier.

No. 49, *Salt Lake City, Utah* (1894).—Small astronomical observatory in the southeast corner of Temple Block. The case was mounted on a stone pier 1 meter high.

No. 50, *Grand Canyon, Wyo.* (1894).—Canyon Hotel, in Yellowstone Park, in the unfinished basement at the west end of the main building. The case was mounted on a low brick pier.

No. 51, *Norris Geyser Basin, Wyo.* (1894).—In Yellowstone Park, in a small room at the entrance to the storehouse west of the lunch station at Norris Geyser Basin. The case was mounted on three wooden posts driven into the ground and braced.

No. 52, *Lower Geyser Basin, Wyo.* (1894).—Fountain Hotel, in Yellowstone Park, in an unfinished room in the basement at the north end of the central wing. The case was mounted on a low brick pier.

No. 53, *Seattle, Wash.* (*university*) (1899).—Washington State University, just northeast of Lake Union, in the physical laboratory which is near the east end of the basement of the main building. The case was mounted on a masonry pier with marble top.

No. 54, *San Francisco, Cal.* (1891).—This station is probably located in the Davidson Observatory in Lafayette Park. The case was mounted on a brick pier.

No. 55, *Mount Hamilton, Cal.* (1891).—Lick Observatory, on Mount Hamilton. The case was mounted on a brick pier.

No. 56, *Seattle Wash.* (*high school*) (1891 and 1899).—High-school building, in a small room used for storing arms partitioned off from the northwest room of the basement. The case was mounted on the concrete floor.

No. 57, *Iron River, Mich.* (1909 and 1910)—High school, just north of the center of town and two blocks west of the railway depot, in a small room in the basement, which is near the foot of the stairway leading from the western one of the main entrances to the basement floor. The case was mounted on three bricks cemnted to the concrete floor, one brick under each footplate.

No. 58, *Ely, Minn.* (1909).—High school, 1905, small storage room under stair landing in west end of basement. The case was mounted on the concrete floor.

No. 59, *Pembina, N. Dak.* (1909).—Public school, also used as high school, temporary room constructed in west corner of the basement. The case was mounted on low concrete pier.

No. 60, *Mitchell, S. Dak.* (1909).—Dakota Wesleyan University, College Hall 1889, chemical storeroom in the south side of the basement about 30 feet from the southwest corner of the building. The case was mounted on the concrete floor.

No. 61, *Sweetwater, Tex.* (1910).—Cyclone cellar of Russell Rhoades just to the rear of his dwelling, which is the second house on the east side of the street leading south from the Texas & Pacific Railway tracks to the Sweetwater Mineral Springs Park. The case was mounted on the concrete floor.

No. 62, *Kerrville, Tex.* (1910).—Lowry Block, a little south of the courthouse grounds, in the basement. The case was mounted on the concrete floor.

No. 63, *El Paso, Tex.* (1910).—El Paso High School, North Kansas and Arizona Streets, small room under stairway in the southwest side of the basement and near the outside basement door. The case was mounted on the concrete floor.

No. 64, *Nogales, Ariz.* (1910).—Public-school building, small room used as library and storeroom in the south side of the basement. The case was mounted on a concrete pier.

No. 65, *Yuma, Ariz.* (1910).—Public-school building, corner of Second Avenue and Third Street, a temporary room constructed in the southeast corner of the basement room which is to be used for manual training. The case was mounted on the concrete floor.

No. 66, *Compton, Cal.* (1910).—High school, in the northeast corner of the southwest corner room of the basement. The case was mounted on the concrete floor.

No. 67, *Goldfield, Nev.* (1910).—High school, corner of Ramsey and Euclid Streets, in small oil room on the boys' side of the basement near the northwest side of the building. The case was mounted on the concrete floor.

No. 68, *Yavapai, Ariz.* (1910).—Yavapai Point, in small tunnel on the rim of the Grand Canyon, 1.2 miles east of El Tovar Hotel. The case was mounted on three stones cemented to the rocky floor of the tunnel.

No. 69, *Grand Canyon, Ariz.* (1910).—Bright Angel trail, in a tunnel on the mining claim of Mr. Cameron near the bottom of the Grand Canyon, 55 paces west from the steep part of the trail known as the "corkscrew" and 12 feet above the bed of a creek. The case was mounted on three stones embedded in a 4-inch layer of concrete on the rocky floor of the tunnel.

No. 70, *Gallup, N. Mex.* (1910).—Public-school building, temporary room constructed in the northeast corner of the basement. The case was mounted on a low concrete pier.

No. 71, *Las Vegas, N. Mex.* (1910).—Normal school on Main Street between Eighth and Ninth Streets, East Las Vegas, girls' dormitory, a temporary room constructed in the southeast corner of the west room of the basement. The case was mounted on the concrete floor.

No. 72, *Shamrock, Tex.* (1910).—Cyclone cellar near the northwest corner of the residence of E. H. Small, about one-half mile southwest of the main part of Shamrock. The case was mounted on the concrete floor.

No. 73, *Denison, Tex.* (1910).—High school, northwest corner of Main Street and Barrell Avenue, in basement storeroom between the physical and chemical laboratories. The case was mounted on three concrete blocks, each cemented to the concrete floor.

No. 74, *Minneapolis, Minn.* (1910).—University of Minnesota, constant temperature room, near the center of the basement of the physical laboratory. The case was mounted on a stone plinth 4 inches thick cemented to the tile floor.

No. 75, *Lead, S. Dak.* (1910).—High-school building, vault near the middle of the east side of the basement. The case was mounted on three concrete blocks molded in place on the concrete floor.

No. 76, *Bismarck, N. Dak.* (1910).—Will School building, superheating room, center of basement. The case was mounted on a low concrete pier.

No. 77, *Hinsdale, Mont.* (1910).—Public school, middle of the north side of the basement. The case was mounted on a low concrete pier.

No. 78, *Sandpoint, Idaho* (1910).—Farmington Central School, alcove under the stairs of the main entrance in the middle of the north side of the basement. The case was mounted on three bricks, each cemented to the concrete floor.

No. 79, *Boise, Idaho* (1910).—High-school building, new (1908) east wing of boys' dressing room in south part of basement directly under the Tenth Street entrance. The case was mounted on three bricks, each cemented to the concrete floor.

No. 80, *Astoria, Oreg.* (1910).—Federal Building (customhouse and post office), temporary room constructed in the west part of the basement. The case was mounted on three bricks, each cemented to the concrete floor.

No. 81, *Sisson, Cal.* (1910).—Sisson Tavern at Berryvale, about 1 mile west and ¼ mile south of the Sisson railroad station, a temporary room constructed in the basement under the southwest corner of the main part of the building The case was mounted on a concrete pier.

No. 82, *Rock Springs, Wyo.* (1910).—City Hall, room near the middle of the southeast side of the basement and just east of the boiler room. The case was mounted on a low concrete pier.

No. 83, *Paxton, Nebr.* (1910).—Globe Hotel, cellar under the storehouse at the rear of the hotel. The case was mounted on three bricks, each cemented to the concrete floor.

No. 84, *Washington, D. C.* (*Bureau of Standards*), (1910).—Room No. 16, near the center of the basement of the physical laboratory or main building. The case was mounted with one brick under each footplate cemented to the concrete floor.

No. 85, *North Hero, Vt.* (1909 and 1910).—Irving House, middle of east side of the east room of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 86, *Lake Placid, N. Y.* (1909).—Lake Placid Inn, storeroom in the east corner of the basement directly below. he hotel dining room. The case was mounted on a low concrete pier.

No. 87, *Potsdam, N. Y.* (1909).—Clarkson School of Technology, photometric room, on the ground floor, directly north of north entrance to the furnace room. The case was mounted on a stone pier composed of two large stone blocks resting on the concrete floor.

No. 88, *Wilson, N. Y.* (1909).—Wilson High School, middle furnace room in the center of the basement. The case was mounted on a low concrete pier.

No. 89, *Alpena, Mich.* (1909).—City hall, alcove under steps at the northwest end of the basement hall and just to the left of the entrance to the office of chief of police. The case was mounted on the concrete floor.

No. 90, *Virginia Beach, Va.* (1911).—Arlington Hotel, temporary room constructed in the northeast corner of the basement of the north wing. The case was mounted on low concrete pier which in turn rested on the brick floor.

No. 91, *Durham, N. C.* (1911).—Trinity College, Academic Building, small room in middle of east end of basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 92, *Fernandina, Fla.* (1911).—Federal Building, northeast corner of Center and Fourth Streets, coal room in the southeast corner of the basement. The case was mounted on three bricks each cemented to the concrete floor.

No. 93, *Wilmer, Ala.* (1911 and 1915).—Abandoned ice house at the east end of the post office, which is located at the point where the main road from the railway station turns to the westward. The case was mounted on a brick pier.

No. 94, *Aliceville, Ala.* (1911).—Constructed pendulum room located on a public highway or West First Street, 47.5 feet north of the building line on the north side of Third Avenue and 23 feet west of the building line on the east side of West First Street. The case was mounted on a concrete pier.

No. 95, *New Madrid, Mo.* (1911).—High-school building, furnace room in the basement at the west end of the west wing. The case was mounted on three bricks each cemented to the concrete floor.

No. 96, *Mena, Ark.* (1911).—High-school building, southwest corner of Eleventh Street and Magnolia Avenue, furnace room in the basement under the east end of the building. The case was mounted on three bricks each cemented to the concrete floor.

No. 97, *Nacogdoches, Tex.* (1911).—M. E. Church on Hospital and Pecan Streets, small room off the west end of the vestry in the north end of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 98, *Alpine, Tex.* (1911).—High-school building at the foot of Sixth Street, small basement room in the middle of the west side of the building directly under the west entryway. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 99, *Farwell, Tex.* (1911).—Farwell Hotel at the southwest corner of the public square, basement room in southwest corner of the building, which is unoccupied. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 100, *Guymon, Okla.* (1911).—Summers Building, small inside room off the northeast corner of the barber shop. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 101, *Helenwood, Tenn.* (1911).—Observatory pendulum room on the premises of Mr. Duncan, directly opposite the railroad station at Helenwood, 40 feet south of Mr. Duncan's north fence line and 16 feet west of his east fence line and about 400 feet east of the railroad station. The case was mounted on a pier of concrete building blocks.

No. 102, *Cloudland, Tenn.* (1909).—Summit of Roan Mountain, Old Cloudland Hotel, northwest corner of the southeast room on the ground floor. The case was mounted on a concrete pier.

No. 103, *Hughes, Tenn.* (1909 and 1911).—Observatory pendulum room on Lewis Hughes's farm, in the corner of his pasture lot, and about 75 feet due east of the north end of his house, which is the first house on the east side of Cove Creek just south of its junction with Doe River, 1¼ miles east of Hughes Gap and 1⅜ miles west by south from Burbank. The case was mounted on a concrete pier.

No. 104, *Charleston, W. Va.* (1911).—High-school building on Quarrier Street near Broad Street, boys' coat room in the basement under the boys' entrance on the northwest side of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 105, *State College, Pa.* (1911).—Chemistry-Physics Building of Pennsylvania State College, photometer room in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 106, *Fort Kent, Me.* (1909).—Dickey Hotel, in the north corner of the basement directly under the hotel office. The case was mounted on a low concrete pier.

No. 107, *Prentice, Wis.* (1911).—Public-school building, room in the basement under the east entrance to the building. The case was mounted on a concrete pier.

No. 108, *Fergus Falls, Minn.* (1911).—High-school building on Cavour Street between Court and Union Streets, girls' entrance to the basement from the north side of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 109, *Sheridan, Wyo.* (1911).—County courthouse, southwest corner of South Main and West Burkill Streets, room in the northwest corner of the basement known as storage vault No. 2. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 110, *Boulder, Mont.* (1911).—Public school south of the courthouse, boys' toilet in the southeast corner of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 111, *Skykomish, Wash.* (1911).—Public-school building, boiler room. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 112, *Olympia, Wash.* (1911).—Washington School building on West Fifth and Quince Streets, boys' toilet in the basement east of the main entrance on the north side of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 113, *Heppner, Oreg.* (1911).—Morrow County courthouse, storage room in the middle of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 114, *Truckee, Cal.* (1911).—High-school building, temporary room constructed in the northeast corner of the southern half of the basement. The case was mounted on a concrete pier.

No. 115, *Winnemucca, Nev.* (1911).—Store owned by H. Warren, on Bridge Street, next to the fire station, furnace room in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 116, *Ely, Nev.* (1911).—Graded-school building, storage room in the northeast corner of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 117, *Guernsey, Wyo.* (1911).—Guernsey Hotel, basement room about the middle of the south side. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 118, *Pierre, S. Dak.* (1911).—High-school building opposite the Capitol, storage room in basement between the toilet and the gymnasium. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 119, *Fort Dodge, Iowa* (1911).—High-school building, storage room about the center of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 120, *Keithsburg, Ill.* (1911).—Public-school building, temporary room constructed in the basement under the west part of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 121, *Grand Rapids, Mich.* (1911).—Smaller building on the northwest corner of the new high-school grounds, at Fountain and North Prospect Streets, boiler room in the northwest corner of the basement. The case was mounted on the concrete floor.

No. 122, *Angola, Ind.* (1911).—Public-school building on East Water Street between South Wayne and South Martha Streets, storage room in the southeast corner of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 123, *Albany, N. Y.* (1911 and 1914).—Public School No. 24, at Delaware and Dana Avenues, janitor's storeroom in the basement, under the boys' entrance on the east side of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 124, *Port Jervis, N. Y.* (1911).—Church Street School building, basement room about the middle of the southeast side of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 125, *Atlantic City, N. J.* (1914).—New high school, corner of Atlantic and Massachusetts Avenues, northwest corner of the dark storeroom in the basement, directly under the steps at the Atlantic Avenue entrance. The case was mounted on a slate slab 3 inches thick cemented to the floor.

No. 126, *Bridgehampton, N. Y.* (1914).—High-school building, near the north side of the laboratory room in the basement. The case was mounted on the concrete floor.

No. 127, *Chatham, Mass.* (1914).—In northwest corner of the small concrete fish house belonging to A. E. Thatcher on the north side of the mill pond. The case was mounted on the concrete floor.

No. 128, *Rockland, Me.* (1914).—Home of Fred Burpee, at 104 Limerock Street, in the northwest corner of the south extension of the basement or cellar. The case was mounted on the concrete floor.

No. 129, *Lancaster, N. H.* (1914).—High school, near the intersection of Main and School Streets, in the basement near the northwest corner of the southwesterly room used as a bath and dressing room for the gymnasium. The case was mounted on the concrete floor.

No. 130, *Whitehall, N. Y.* (1914).—Armory at the corner of Willian and Daultney Streets, near the northwest corner of the dark room in the basement. The case was mounted with one brick under each footplate cemented to the concrete floor.

No. 131, *Little Falls, N. Y.* (1914).—Benton Hall School, on the east side of the park, at the corner of Alexander and Waith Streets, in a temporary room constructed in the most northwesterly room of the basement. The case was mounted on the concrete floor.

No. 132, *Watertown, N. Y.* (1914).—High school, on Sterling Street between Washington and Jay Streets, in the carpenter shop in the basement. The case was mounted on the concrete floor.

No. 133, *Southport, N. Y.* (1914).—In the basement of a small store on Pennsylvania Avenue used as a storeroom by Sargent & Sage, whose grocery store is the next building east at the corner of Pennsylvania and Caton Avenues. The case was mounted on a pier built of brick, stone, and plaster of Paris.

No. 134, *Erie, Pa.* (1914).—Public School No. 2, at the corner of Seventh and Holland Streets, in the basement storeroom under the steps at the south entrance. The case was mounted on the concrete floor.

No. 135, *Parkersburg, W. Va.* (1914).—Post office, in the southeast corner of the small room in the northeast corner of the basement. The case was mounted with one brick under each footplate cemented to the concrete floor.

No. 136, *Columbus, Ohio* (1914).—Franklin County Memorial Hall, on East Broad Street, in the northeast corner of a triangular-shaped room called the kitchen, in the basement back of the stage. The case was mounted with one brick under each footplate cemented to the concrete floor.

No. 137, *Indianapolis, Ind.* (1914).—Post office, in a small triangular-shaped room on the Meridian Street side of the basement used as a storeroom by the engineer of the building and directly across the hall from the west elevator. The case was mounted on the concrete floor.

No. 138, *Springfield, Ill.* (1914).—Edwards Public School, at the corner of Lawrence Avenue West and Edwards Street, in a room near the center of the north front of the basement. The case was mounted on the concrete floor.

No. 139, *Lebanon, Mo.* (1914).—New high school, in the furnace room about 2 feet from the corner of the brickwork supporting the boiler. The case was mounted on the concrete floor.

No. 140, *Joplin, Mo.* (1914).—Post office, a small room with a sloping ceiling under the stairway in the northeast corner of the basement. The case was mounted on the concrete floor.

No. 141, *Fort Smith, Ark.* (1914).—Courthouse, in the northeast corner of the room used as a test room for cement, etc., by the city engineer, in the southeast corner of the basement. The case was mounted on the concrete floor.

No. 142, *Texarkana, Ark.* (1914).—Post office, in the northwest room of the basement of the north wing. The case was mounted on the concrete floor.

No. 143, *Hot Springs, Ark.* (1914).—Garland County courthouse, in the north corner room of the ground floor. The case was mounted on the concrete floor.

No. 144, *Alexandria, La.* (1914).—City hall, in one of the small closets under the steps on the northwest side of the basement and just to the left of the short flight of steps leading to the main hall of the basement. The case was mounted on the concrete floor.

No. 145, *Laurel, Miss.* (1914).—Silas Gardner School, in a room on the north side of the basement, the first room to the left when entering the basement at the east door and just across the hall from the domestic-science kitchen. The case was mounted on the concrete floor.

No. 146, *Richmond, Va.* (1915).—Post office, in a room near the center of the south side of the basement used as a storeroom by the internal-revenue department. The case was mounted with one brick under each footplate cemented to the concrete floor.

No. 147, *Emporia, Va.* (1915).—The station is in the county courthouse. Two sets of observations were made, the first in the office of the commissioner of revenue in the south wing of the courthouse and the second in the southeast corner of the mayor's office, which is the next room. For the first set the case was mounted on the wooden floor and for the second set the case was mounted on the concrete floor.

No. 148, *Greenville, N. C.* (1915).—Proctor Hotel, on the corner of Evans and Third Streets, in room No. 2 of the higher or back level of the basement, the second room from the steps leading from the lower or front part of the basement and on the left side of the hallway. The case was probably mounted on the concrete floor.

No. 149, *Wilmington, N. C.* (1915).—County courthouse at the intersection of Third and Princess Streets, in a room in the basement once used as a storeroom for disinfectants by the city health officer. It is on the side of the basement toward Princess Street and the last room but one on the left side of the corridor at right angles to Third Street. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 150, *Cheraw, S. C.* (1915).—Hotel Covington, in a back room on the first floor, the second room from the northwest end of the building and directly opposite the office of Dr. Purvis. The room is separated from the next one by a partition two-thirds of the way to the ceiling. The case was probably mounted on the concrete floor.

No. 151, *Charlotte, N. C.* (1915).—United States assay office, in a small room in the east corner of the basement. The case was probably mounted on the concrete floor.

No. 152, *Asheville, N. C.* (1915).—Post office, in the northeast corner room of the basement which has two small windows opening on Haywood Street. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 153, *Cleveland, Tenn.* (1915).—Post office, in the southwest corner of the basement, in a room used as a rest room for the rural carriers. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 154, *Winston-Salem, N. C.* (1915).—High school on Cherry Street at the head of Third Street, in the southwest corner of the basement in a room used as a storage room. The case was probably mounted on the concrete floor.

No. 155, *Knoxville, Tenn.* (1915).—Western Union office building, on Gay Street near Vine Street, in the basement in a room used as a storeroom by the linemen and about 10 feet from the foot of the stairs leading down from the main office. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 156, *Bristol, Va.* (1915).—Courthouse and city hall, in a room on the south side of the basement next to the southeast corner room. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 157, *Homestead, Fla.* (1915).—High school, in a temporary room constructed on the north end of the west porch. The case was mounted with two bricks under each footplate cemented together and to the concrete floor of the porch.

No. 158, *Sebring, Fla.* (1915).—Kiln for drying lumber, about 40 meters northeast of the electric-light plant and 100 meters northeast of the Atlantic Coast Line Railway station. The case was mounted on a pier made of concrete blocks cemented together, with two bricks under each footplate cemented together and to the top of the pier.

No. 159, *Titusville, Fla.* (1915).—Small office belonging to J. S. Daniels near the northwest corner of Palm and Julia Streets. The case was mounted on a pier made of concrete blocks cemented together, with two bricks under each footplate cemented together and to the top of the pier.

No. 160. *Leesburg, Fla.* (1915).—George W. Wrenneck Building, at the corner of Main and Seventh Streets, in the southwest corner of the back room. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 161, *Cedar Keys, Fla.* (1915).—House belonging to J. B. Lutterdah, at the northeast corner of Fifth and D Streets, in the northwest corner of the south basement room. The case was mounted on a brick pier with two bricks under each footplate cemented together and to the top of the pier.

No. 162, *Macon, Ga.* (1915).—Post office, near the window of the engineer's room in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 163, *Albany, Ga.* (1915).—Grammar school at the corner of Broad and Madison Streets, in the northwest corner of the janitor's storeroom in the basement. The case was mounted with one brick under each footplate cemented to the concrete floor.

No. 164, *Pensacola, Fla.* (1915).—Customhouse and post office, in the northeast corner of the customhouse storeroom in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 165, *Opelika, Ala.* (1915).—New brick store on Avenue A, owned by Mrs. Josephine Denniston and rented by J. Lem Satterwhite, in the southeast end of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 166, *Huntsville, Ala.* (1915).—United States courthouse and post office, in the easternmost room in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 167, *Arkansas City, Ark.* (1915).—Courthouse, in the west corner of the grand jury room. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 168, *Memphis, Tenn.* (1915).—Customhouse and post office, in the northeast corner of the northeast room in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 169, *Mammoth Spring, Ark.* (1915).—Old Fulton County Bank Building, owned by the Citizens Bank of Mammoth Spring, in a small room used for ice storage in the southwest corner of the north basement room. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 170, *Hopkinsville, Ky.* (1915).—Custonhouse and post office, in the southeast corner of the northeast room of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 171, *Danville, Ky.* (1915).—Customhouse and post office, near the center of the north end of the room used as a coal bin in the northeast corner of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 172, *Clifton Forge, Va.* (1915).—Courthouse and post office, in the north end of the storeroom near the center of the west side of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 173, *Greenville, Ala.* (1915).—Courthouse, in the west end of the coal bin in the boiler room in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 174, *Birmingham, Ala.* (1915).—United States customhouse and post office at the northeast corner of Second Avenue and Eighteenth Street, in the janitor's office in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 175, *Lexington, Va.* (1915).—Post office at the corner of Lee Avenue and Nelson Street, in the southwest end of the storeroom near the center of the northeast side of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 176, *Prestonsburg, Ky.* (1915).—The Bank Josephine, on Main Street, at the foot of the bridge over the Big Sandy River, in the northwest corner of the southwest room in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 177, *Traverse City, Mich.* (1915).—Post office, in storeroom in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 178, *Seney, Mich.* (1915).—Bank of the Boggott, Bacheller & Cool Banking Co., in the vault. The case was mounted on the concrete floor.

No. 179, *Oconto, Wis.* (1915).—High school on School Street, in the mechanical drawing room in the south corner of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 180, *Grand Rapids, Wis.* (1915).—Bandelin Hotel on Grand Avenue, in the basement near the middle of the east side. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 181, *Winona, Minn.* (1915).—Post office, in the northeast corner room of the basement. The case was mounted on the brick floor, with one paving brick under each footplate.

No. 182, *Baldwin, Wis.* (1915).—Town Hall, in the rest room in the basement at the foot of the stairs leading from the main entrance of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 183, *Cumberland, Wis.* (1915).—High-school building, in the boiler room in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 184, *Cambridge, Minn.* (1915).—High-school building, in the west part of the boiler room in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 185, *Brainerd, Minn.* (1915).—Post office at northwest corner of Maple and Sixth Streets, in a room about midway of the west side of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 186, *Aberdeen, S. Dak.* (1915).—Post office and courthouse, in the north end of the small storeroom at the north end of the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 187, *Faith, S. Dak.* (1915).—W. C. Meyer's residence, about 260 meters west-southwest from the Chicago, Milwaukee & St. Paul Railway Station, in the northwest room of the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 188, *Marmarth, N. Dak.* (1915).—Allison Building, on the corner of Main and First Streets, in the west end of a small storeroom in the basement directly beneath the post office. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 189, *Towner, N. Dak.* (1915).—McHenry County courthouse, in the west end of the vault in the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 190, *Crosby, N. Dak.* (1915).—Crosby graded school, in the northwest room in the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 191, *Crookston, Minn.* (1915).—Franklin School, in the east part of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 192, *Poplar Mont.* (1915).—Poplar public school in the northeast part of the town, in the east room in the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 193, *Miles City, Mont.* (1915).—Lincoln School, on Lake Street, in the south part of the town, in the south end of the west storeroom in the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 194, *Huntley, Mont.* (1915).—Huntley Hotel, north-northwest of the railway station, in the southeast corner of the basement room under the south part of the hotel. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 195, *Lander, Wyo.* (1915).—Post office and courthouse, in the south end of the storeroom in the south corner of the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 196, *Faribault, Minn.* (1915).—Central School, in the southeast corner room of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 197, *St. James, Minn.* (1915).—County courthouse, in the basement midway of the north side of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 198, *Edgemont, S. Dak.* (1915).—Public-school building, in the southwest corner of the southeast room in the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 199, *Dawson, Minn.* (1915).—High-school building, in the dark room in the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 200, *Cokato, Minn.* (1915).—High school, in the basement under the central part of the east side of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 201, *Wasta, S. Dak.* (1915.)—Residence of James Trask on the east side of the street one block west and two blocks north from the railway station, in the northwest corner of the cellar under the southeast corner of the house. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 202, *Moorcroft, Wyo.* (1915).—Public-school building, on the south side of the east room in the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 203, *Duluth, Minn.* (1915).—County courthouse, in a room known as the connecting hall in the basement under the center of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 204, *Osage, Iowa* (1915).—High school, in the basement near the middle of the south side of the building and directly under the galvanized-iron air duct. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 205, *Randolph, Nebr.* (1915).—Public school near the Burlington Railway station, in the southwest corner of a temporary room constructed in the west end of the southernmost ventilating room in the basement under the east side of the building. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 206, *Valentine, Nebr.* (1915).—Public school, in the southeast corner of the southeast room in the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 207, *Wheeling, W. Va.* (1915).—German Bank Building, in the basement under the Western Union Telegraph office. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 208, *Leon, Iowa* (1915).—North School, in the south side of the northwest room on the ground floor. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 209, *Laurel, Md.* (1915).—Residence of Col. Frank E. Little on Main Street about 10 minutes walk from the Baltimore & Ohio Railway station, in the east corner of the easternmost room in the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 210, *Harrisburg, Pa.* (1915).—Central High School, in the basement near the center of the north side of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 211, *Pittsburg, Pa.* (1915).—Second Ward School on Sherman Avenue just north of North Avenue in the north-side section of Pittsburgh, in the basement under the east front of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 212, *Rockville, Md.* (1915).—High school, in the north end of a small room formerly used as a printing shop in the basement under the north side of the building. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 213, *Upper Marlboro, Md.* (1915).—Masonic Hall on the south side of Main Street about 80 meters west of the courthouse, in the west side of the southeast room in the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 214, *Fairfax, Va.* (1915).—Bungalow belonging to the Rural Homes Development Co. about 300 meters west-northwest from the residence of E. A. Capen, in the southwest corner of the basement. The case was mounted with a small concrete block under each footplate cemented to the concrete floor.

No. 215, *Crisfield, Md.* (1915).—Residence of J. H. Riggin, 101 South Somerset Avenue, in the rear part of the basement. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 216, *Fredericksburg, Va.* (1915).—Post office, storeroom in the basement under the north side of the building. The case was mounted on the concrete floor.

No. 217, *Dover, Del.* (1915).—Wilmington Conference Academy, in the basement under the gymnasium at the middle of the north side of the building. The case was mounted with two bricks under each footplate cemented together and to the concrete floor.

No. 218, *North Tamarack* near *Calumet, Mich.* (1902).—Observations were made at three different levels at North Tamarack Mine, at the surface of the ground, at a depth of 1200 feet, and at a depth of 4600 feet. The two stations below the ground were occupied by Prof. F. W. McNair, of the Michigan College of Mines. His results are not published here. A temporary pendulum room was probably used for the surface observations. The case was mounted on a masonry pier.

No. 219 *Hagerstown, Md.* (1915).—Post office, in the northeast corner of the boiler room in the northwest corner of the basement. The case was mounted with a small concrete block under each foot plate cemented to the concrete floor.

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Mena, Ark	96	H. D. King	1911	180	154				
Miles City, Mont	[illegible]	C. L. Garner	1915	184	173				
Minneapolis, Minn	74	H. D. King	1910	179	151				
Mitchell, S. Dak	[illegible]	W. H. Burger	1909	179	147				
Moorcroft, Wyo	202	C. L. Garner	1915	185	174				
Mount Hamilton, Cal	55	T. C. Mendenhall	1891	179		549 550			
Nacogdoches, Tex	97	H. D. King	1911	180	154				
New Madrid, Mo	95	do	1911	180	153				
New Orleans, La	5	G. R. Putnam	1895	177				305	
New York, N. Y	27	E. Smith	1899	178					280
Nogales, Ariz	64	W. H. Burger	1910	179	149				
Norris Geyser Basin, Wyo	51	G. R. Putnam	1894	178			35		
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Olympia, Wash	112	T. L. Warner	1911	181	156				
Opelika, Ala	165	C. L. Garner	1915	183	170				
Osage, Iowa	204	J. D. Powell	1915	185	165				
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Paxton, Nebr	83	H. D. King	1910	180	152				
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Randolph, Nebr	205	C. L. Garner	1915	185	175				
Rayville, La	6	W. H. Burger	1909	177	145				
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